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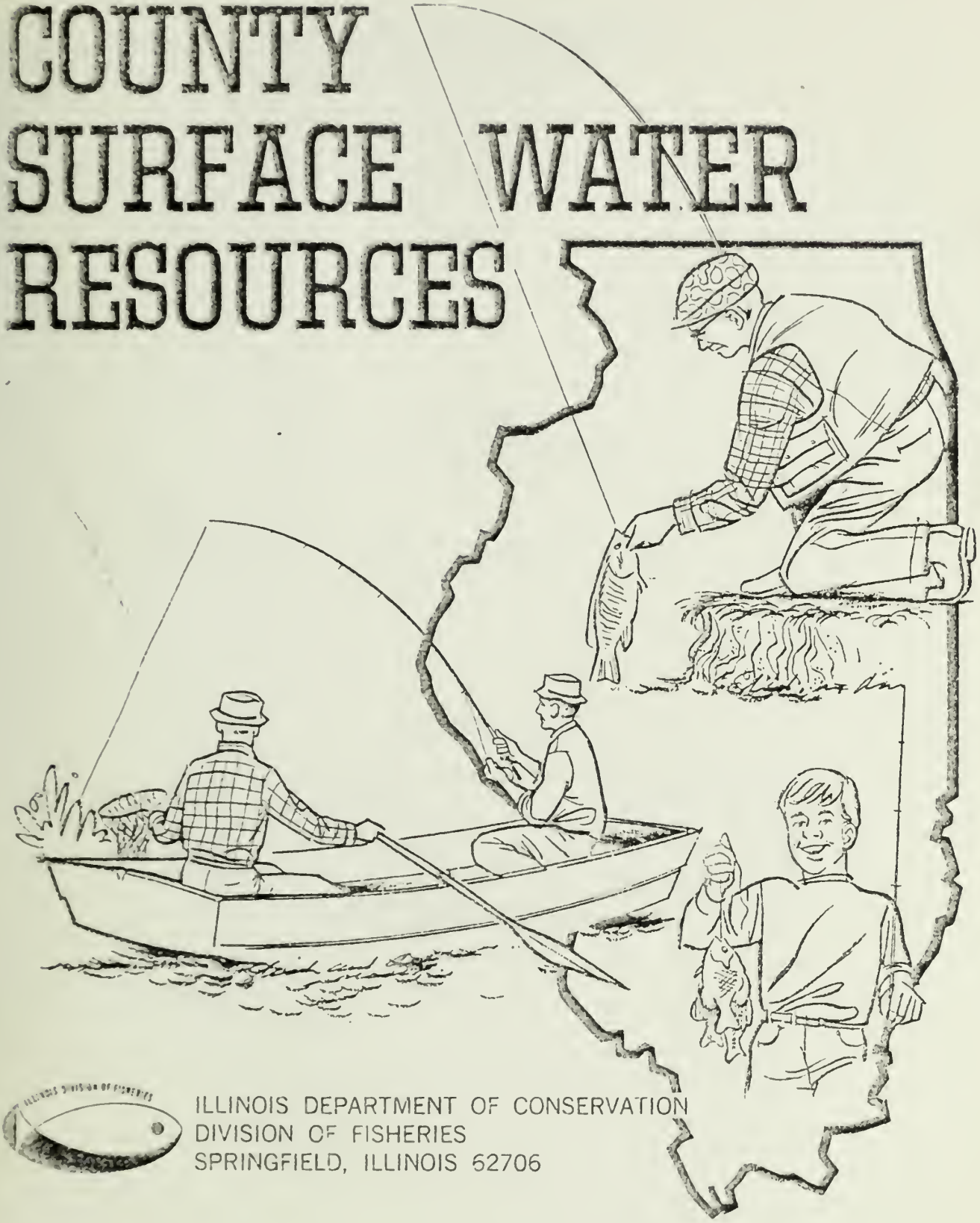
WILL COUNTY SURFACE WATER RESOURCES



ILLINOIS DEPARTMENT OF CONSERVATION
DIVISION OF FISHERIES
SPRINGFIELD, ILLINOIS 62706

ACKNOWLEDGEMENTS

DATA FOR THIS REPORT WAS OBTAINED FROM INFORMATION AVAILABLE IN THE FILES OF THE DEPARTMENT OF CONSERVATION, AND OTHER COUNTY AND STATE AGENCIES ASSOCIATED WITH CONSERVATION. THE REPORT WAS EDITED BY PAUL VIDAL, AREA FISHERY BIOLOGIST AND A. C. LOPINOT, CHIEF FISHERY BIOLOGIST. THE FINAL MANUSCRIPT FOR PRINTING WAS TYPED BY ANN HAVEY, TYPIST.

ILLINOIS DEPARTMENT OF CONSERVATION
DIVISION OF FISHERIES

WILL COUNTY
SURFACE WATER RESOURCES

BY

JAMES R. LANGBEIN
FISHERY BIOLOGIST

JANUARY 1974

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Natural History Survey

PREFACE

THE HIGHER STANDARD OF LIVING ENJOYED BY ILLINOIS' CITIZENS HAS RESULTED IN AN INCREASED AMOUNT OF LEISURE TIME TO PURSUE OUTDOOR RECREATION. THERE HAS BEEN AN INCREASED INTEREST IN BOATING, SAILING, CANOEING, WATER-SKIING, FISHING, SKIN DIVING, AND OTHER WATER ASSOCIATED SPORTS. DEMANDS BY INDUSTRY, AGRICULTURE AND URBAN EXPANSION HAVE ALSO PLACED HEAVY BURDENS ON SURFACE WATERS. IT IS TIME TO TAKE STOCK OF OUR EXISTING AND POTENTIAL RESOURCES AND PROBLEMS TO PLAN FOR THE FUTURE.

A COUNTY WATER RESOURCE REPORT, SUCH AS THIS ONE, IS AN ATTEMPT BY THE DIVISION OF FISHERIES OF THE ILLINOIS DEPARTMENT OF CONSERVATION TO SUMMARIZE DATA ON THE MORE IMPORTANT EXISTING WATER RESOURCES AND THEIR RECREATIONAL VALUE. WITH THIS DATA AVAILABLE, A METHOD TO APPORTION USAGE OF WATER IN THE BEST INTEREST OF THE PUBLIC CAN BE DETERMINED TOGETHER WITH THE POTENTIAL NEEDS.

THIS INVENTORY IS AN EXTENSIVE SURVEY OF THE SURFACE WATER RESOURCES AND RELATED ITEMS IN WILL COUNTY. EMPHASIS HAS BEEN PLACED ON THE AREAS OF GREATEST USE AND RECREATIONAL VALUE. THE INFORMATION PROVIDED IN THIS REPORT HAS BEEN OBTAINED FROM PAST RECORDS ON FILE IN THE ILLINOIS DEPARTMENT OF CONSERVATION, OTHER CONSERVATION AGENCIES, AND DATA COLLECTED BY FISHERY BIOLOGISTS AND FISH CONSERVATION AGENTS.

IN 1964, WITH THE PUBLICATION OF "ILLINOIS SURFACE WATER INVENTORY", THE DIVISION OF FISHERIES PROVIDED THE STATE WITH THE FIRST STATISTICAL SUMMARY OF SURFACE WATER RESOURCES. THIS WAS A COMPILATION OF WATERS IN EACH COUNTY WITH NO EVALUATION AS TO THEIR USE. IN ORDER TO HAVE MORE COMPLETE DATA AVAILABLE FOR PLANNING, THE DIVISION OF FISHERIES INAUGURATED A PROGRAM IN 1966 WHEREBY DETAILED WATER RESOURCE REPORTS WERE TO BE PREPARED FOR EACH OF THE 102 COUNTIES IN ILLINOIS.

THESE REPORTS SHOULD ASSIST IN LONG-RANGE PLANNING AND DEVELOPMENT OF THE STATES WATER RESOURCES TO MEET THE NEEDS OF THE FUTURE.

A. C. LOPINOT
CHIEF FISHERY BIOLOGIST

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ABSTRACT

WILL COUNTY, LOCATED IN NORTHEASTERN ILLINOIS, HAS A TOTAL SURFACE AREA OF 845 SQUARE MILES OR 540,800 ACRES. THE POPULATION IN 1960 WAS 191,617 AND IN 1970 WAS 249,498, AN INCREASE OF 30.2% IN TEN YEARS. USING THE 1970 CENSUS, THERE ARE 2.2 ACRES OF LAND PER CAPITA, BUT ONLY 0.61 ACRES OF WATER PER CAPITA IN THE COUNTY.

THE TOPOGRAPHY OF THE LAND VARIES FROM DEPRESSIONAL AND NEARLY LEVEL TO ROLLING WITH A FEW STEEP SLOPES ALONG SOME OF THE STREAMS.

THE COUNTY IS WELL SUITED TO POND CONSTRUCTION AND HAS INCREASED FROM 780 IMPOUNDMENTS IN 1963 TO 976 IMPOUNDMENTS AS OF JANUARY 1, 1974, AN AVERAGE OF JUST OVER 19 NEW IMPOUNDMENTS PER YEAR. WITH THIS INCREASE, AS OF JANUARY 1, 1974, WILL COUNTY HAS A TOTAL SURFACE IMPOUNDMENT ACREAGE OF 3,928.81 ACRES. THE 15 MAJOR STREAMS IN THE COUNTY HAVE A TOTAL SURFACE AREA OF 4,814.05 ACRES. THE TOTAL COMBINED SURFACE WATER AREA IS 8,742.86 ACRES OR ONLY 1.61% OF THE TOTAL SURFACE AREA OF THE COUNTY.

LAND WITH WATER FRONTAGE AVAILABLE TO FREE PUBLIC ACCESS IS LIMITED TO THE DES PLAINES CONSERVATION AREA WHICH HAS ACCESS TO PORTIONS OF THE KANKAKEE RIVER BACKWATER AND THE KANKAKEE RIVER ITSELF; THE KANKAKEE RIVER STATE PARK HAS A BOAT LAUNCHING RAMP AND SOME PICNICKING AREA ON THE KANKAKEE RIVER AND TO THE JOLIET PARK DISTRICT - PILCHER PARK POND (0.70 ACRES).

THE LARGEST WATER AREA IS COMMONWEALTH EDISON'S NUCLEAR COOLING LAKE. THIS IS A COMPANY OWNED LAKE NOT OPEN TO THE PUBLIC AT THE PRESENT. THERE ARE ALSO NUMEROUS STRIPMINE LAKES IN WILL COUNTY.

THE PONDS AND LAKES IN WILL COUNTY PROVIDE LARGEMOUTH BASS AND BLUEGILL, WHILE THE KANKAKEE RIVER AND ITS FEEDER STREAMS PROVIDE VERY GOOD SMALLMOUTH BASS, WALLEYE, NORTHERN PIKE AND CHANNEL CATFISH FISHING.

GENERAL SETTING OF THE WATERS IN WILL COUNTY

WILL COUNTY IS LOCATED IN THE NORTHEASTERN PART OF ILLINOIS ABOUT 70 MILES SOUTH OF THE ILLINOIS-WISCONSIN STATE LINE (FIG. 1). IT IS BORDERED BY KENDALL AND GRUNDY COUNTIES ON THE WEST, DU PAGE AND COOK COUNTIES TO THE NORTH, KANKAKEE COUNTY TO THE SOUTH AND THE STATE OF INDIANA TO THE EAST. THE COUNTY IS ABOUT 31 MILES LONG AT ITS GREATEST LENGTH (NORTH-SOUTH) AND ABOUT 38 MILES WIDE AT ITS GREATEST WIDTH (EAST-WEST). WILL COUNTY IS DIVIDED INTO 24 TOWNSHIPS (FIG. 3) THAT OCCUPY 845 SQUARE MILES OR 540,800 ACRES, MAKING IT THE 13TH LARGEST COUNTY IN THE STATE (FIG. 2). THE POPULATION IN THE 1970 CENSUS WAS 249,498. THE TOPOGRAPHY OF THE COUNTY VARIES FROM DEPRESSIONAL AND NEARLY LEVEL TO ROLLING WITH A FEW STEEP SLOPES ALONG SOME OF THE STREAMS. SIXTY-EIGHT PERCENT OF THE LAND AREA IS IN CROPLAND AND PASTURE. OTHER VEGETATIVE COVERING INCLUDES UPLAND TIMBER CHARACTERIZED BY OAK AND HICKORY AND BOTTOMLAND TIMBER CHARACTERIZED BY MAPLE, COTTONWOOD, WILLOW AND ELM. IN 1964, THE LAND AREA OF WILL COUNTY THAT COULD BE CONSIDERED FOREST LAND WAS ONLY 5,532 ACRES OR 1.0 PERCENT OF THE TOTAL LAND AREA OF THE COUNTY (RESOURCE STUDY OF NORTHERN ILLINOIS, 1967).

AGRICULTURE IS A MAJOR FACTOR IN THE ECONOMY OF WILL COUNTY. APPROXIMATELY 68.7% OF THE COUNTY IS UNDER CULTIVATION WITH THE AVERAGE FARM SIZE BEING ABOUT 207 ACRES. THE TREND, HOWEVER, HAS BEEN AWAY FROM FARMING AND TOWARD INDUSTRY. DURING THE TIME PERIOD OF 1945 TO 1964 THE NUMBER OF FARMS IN THE COUNTY DECLINED FROM 2,817 TO 1,912 FARMS, A DECREASE OF 32%. INDUSTRY IN THE JOLIET AREA AND ALONG THE DES PLAINES AND DU PAGE RIVERS HAS COME TO PLAY AN IMPORTANT PART IN THE ECONOMY OF THE COUNTY.

THE CLIMATE OF WILL COUNTY IS THE CONTINENTAL CLIMATE TYPICAL OF NORTHERN ILLINOIS. THIS TYPE OF CLIMATE IS CHARACTERIZED BY A WIDE ANNUAL TEMPERATURE RANGE.

PHYSIOGRAPHY

THE TOPOGRAPHY OF WILL COUNTY VARIES FROM DEPRESSIONAL AND NEARLY LEVEL TO ROLLING. THESE TOPOGRAPHIC DIFFERENCES CAN BE CONTRIBUTED TO THE FIVE MORAINAL RIDGES (FIG. 4) ALONG WITH SEVERAL OUTWASH PLAINS AND INTERMORAINAL AREAS.

THE MORAINAL RIDGES WERE DEPOSITED BY SEVERAL GLACIERS THAT ENTERED THE AREA THAT IS NOW WILL COUNTY. MELTING WATERS FROM THESE GLACIERS, ARE RESPONSIBLE FOR THE NEARLY LEVEL OUTWASH PLAINS NEXT TO THE DU PAGE, DES PLAINES AND KANKAKEE RIVERS.

THE MINOOKA MORAINE FORMS A NORTH-SOUTH RIDGE ALONG THE WILL-KENDALL COUNTY BORDER. IT DOES NOT EXTEND PAST THE DES PLAINES RIVER.

THE ROCKDALE MORAINE BEGINS IN NORTHERN WILL COUNTY AND EXTENDS SOUTHWARD BETWEEN THE DU PAGE AND DES PLAINES RIVERS.

THE MANHATTAN MORAINE BEGINS JUST SOUTH OF JOLIET AND EXTENDS IN A SOUTHEASTERLY DIRECTION INTO KANKAKEE COUNTY.

THE VALPARAISO MORAINE IS THE LARGEST OF THE MORAINAL RIDGES IN WILL COUNTY, COVERING MOST OF THE NORTHEASTERN PART OF THE COUNTY. IT EXTENDS INTO DU PAGE AND COOK COUNTIES ON THE NORTH AND EASTWARD INTO INDIANA.

TINLEY MORAINE TOUCHES THE EXTREME NORTHEAST CORNER OF WILL COUNTY AT STEGER.

THE LOWEST ELEVATIONS IN WILL COUNTY ARE ABOUT 500 FEET ABOVE MEAN SEA LEVEL AND ARE IN THE AREA WHERE THE DES PLAINES AND KANKAKEE RIVERS LEAVE THE COUNTY. THE HIGHEST POINT IN WILL COUNTY, ABOUT 830 FEET ABOVE SEA LEVEL, IS ON THE VALPARAISO MORAINE JUST WEST OF MONEE.

FIGURE 1. LOCATION OF WILL COUNTY IN ILLINOIS

FIGURE 2. GENERAL HIGHWAY MAP OF WILL COUNTY ILLINOIS

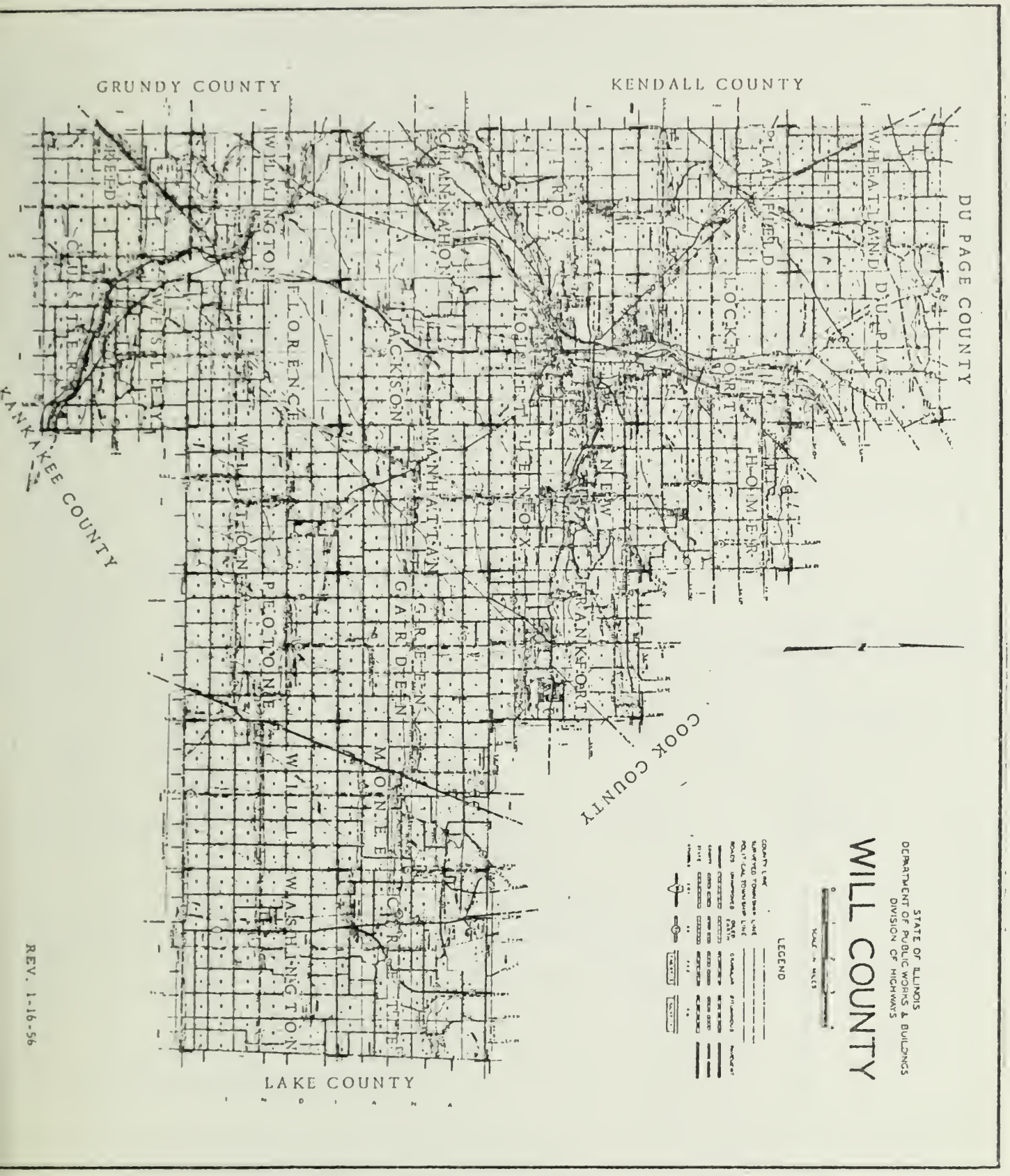
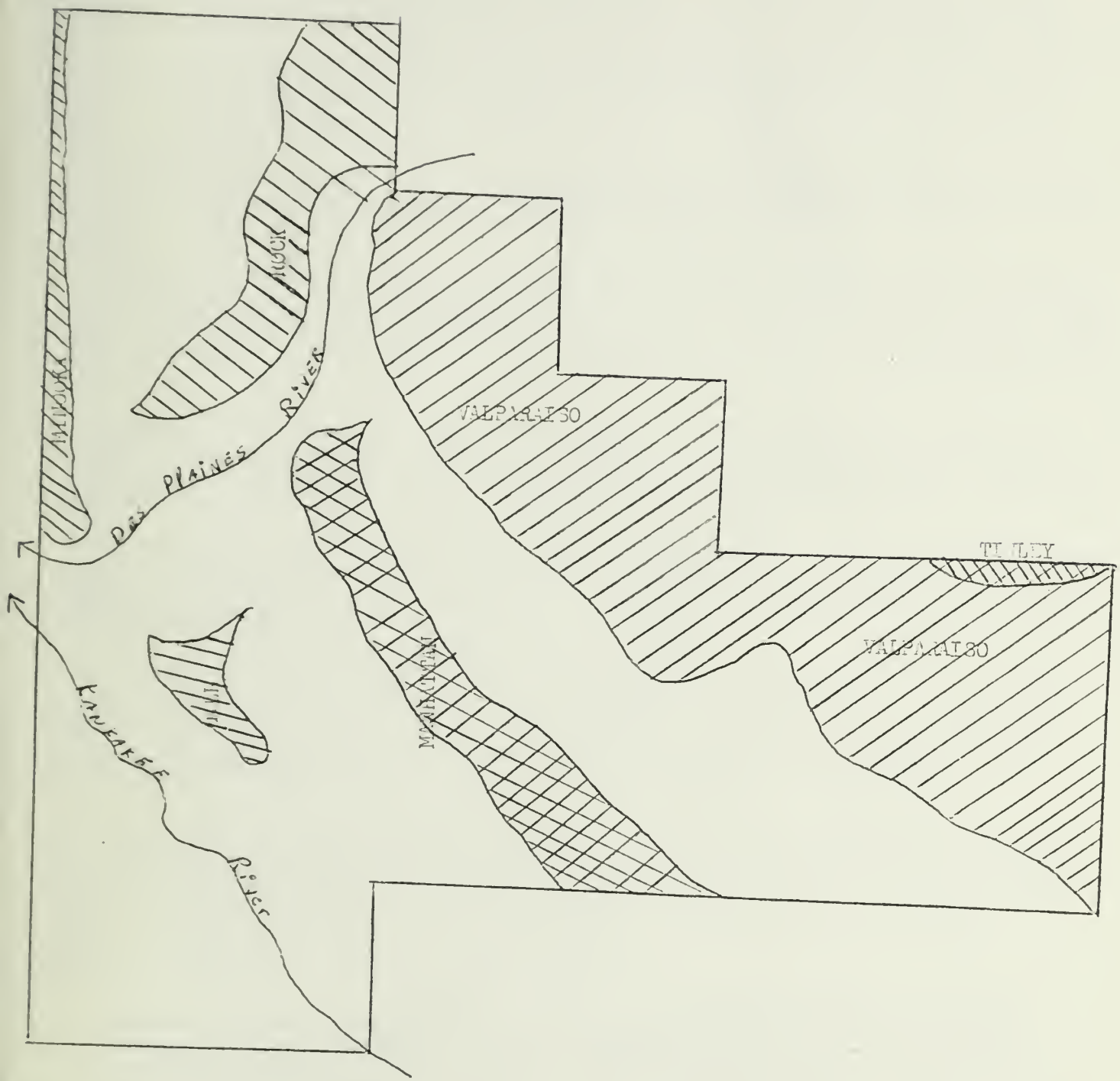


FIGURE 3. TOWNSHIPS OF WILL COUNTY

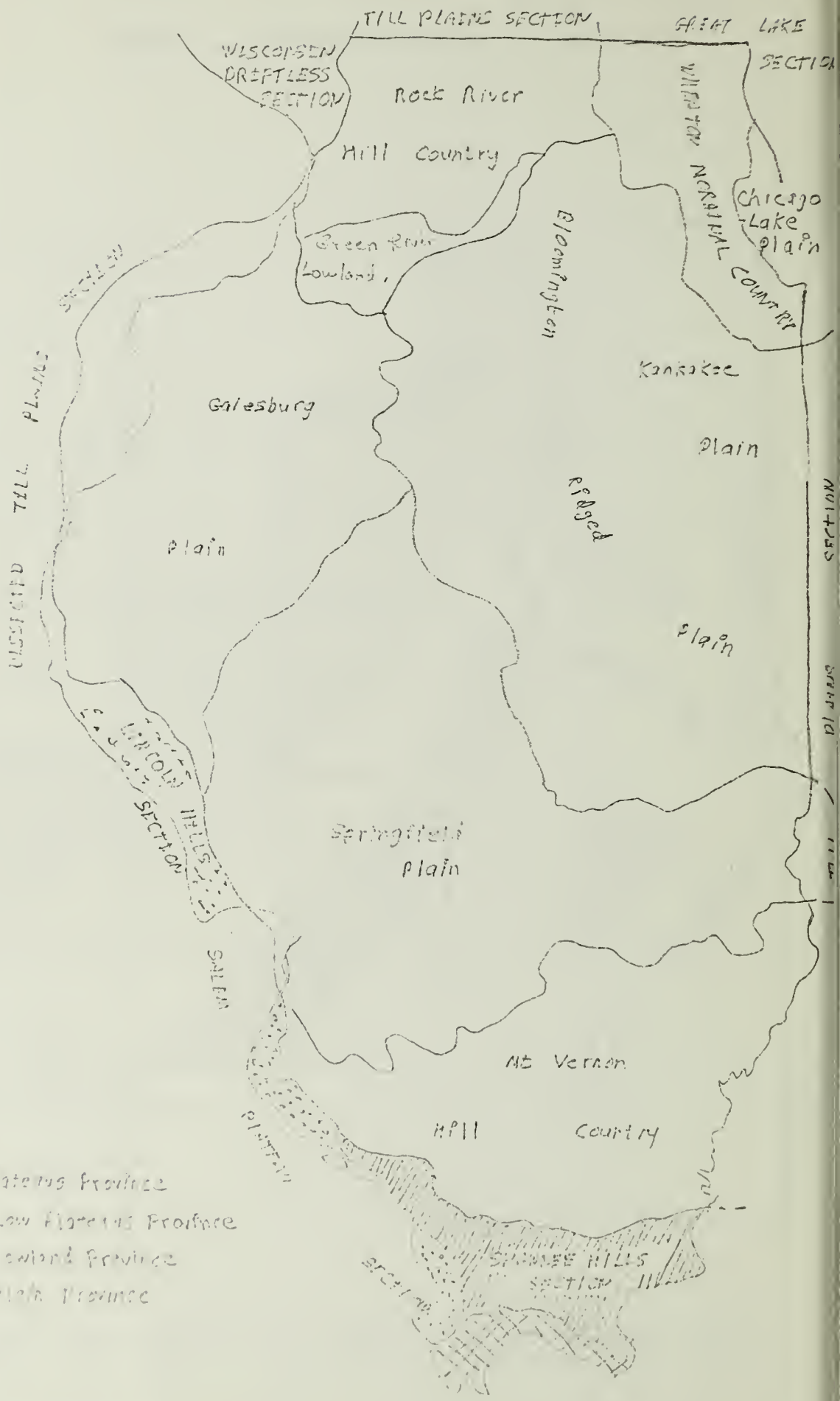
WHEATLAND	DUPAGE				
PLAINFIELD	LOCKPORT	HOMER			
TROY	JOLIET	LENOX	FRANKPORT		
CHANNAHON	JACKSON	MANHATTAN	GREEN GARDEN	MONEE	CRETE
WILMINGTON	FLORENCE	WILTON	PEOTONE	WILL	WASHINGTON
REED	WESLEY				

FIGURE 4. GLACIAL MORAINES OF WILL COUNTY



SOURCE: H. L. WASCHER, P. T. VEALE, AND R. T. ODELL, 1962. WILL COUNTY SOILS. SOIL REPORT 80.

Figure 5. PHYSIOGRAPHIC DIVISIONS OF ILLINOIS



Source: Illinois State Geological Survey

CLIMATE

Northern Illinois has a continental climate with a wide range in temperature and frequent short period fluctuations in temperature, humidity, cloudiness and wind direction. The climate of Will County features relatively warm summers and relatively cold winters, but modified somewhat by Lake Michigan. A lake breeze often reduces summer temperatures several degrees during the latter part of the day.

Mean annual temperature at the Joliet weather station is about 50°F. Mean maximum is about 61°F. and mean minimum about 40°F. The highest temperature ever recorded was 109°F. in July 1936, and the lowest was -25°F. in December 1872 (Table 1).

May 2nd is the average date of the last killing frost in spring (Fig. 6); and October 11th, of the first killing frost in fall (Fig. 7). This gives an average frost free season of 162 days (Fig. 8).

Precipitation is usually plentiful with an average annual total (at Joliet) of 34 inches. Between 1893 and 1952, the highest recorded rainfall in any one year was 56 inches in 1902 and the lowest was 24 inches in 1912 (Fig. 9).

During the growing season, April-September, rainfall averages about 21 inches. The probable frequency of heavy rainstorms in Illinois has been analyzed by Huff and Neil. In Will County, for any one 24-hour period, a 3 inch rain may be expected once each 5 years, a 4 inch rain once every 15 years, and a 5 inch rain once in about 30 years.

Lightning and thunder accompany most short period intense rains, particularly in the summer, although some thunderstorms produce little precipitation. June has an average of 7 thunderstorms, July about 6, May and August about 5 each. Very few thunderstorms occur during November, December, January and February.

On the average, 1 or 2 hailstorms occur during the year. Intensities vary from a few hailstones in some instances to severe damage in others. The more intensive storms usually occur in March and April. In general, hailstorms occur mostly between 2:00 and 8:00 P.M. (Huff, F. A. and Changnon).

Flooding of the Kankakee and Des Plaines rivers does occur, usually after prolonged periods of rainfall or after sudden spring thaws when there is a heavy accumulation of snow in the drainage area. In the spring flooding can be aggravated by ice jams, especially on the Kankakee River. Flooding on minor streams in the county generally results from locally heavy thunderstorms of short duration.

The lakes and ponds of northern Illinois, including Will County, are usually ice bound from mid-December to late March. This is also generally true for streams in the county. Lake and pond ice cover in northern Illinois usually ranges between 12 and 20 inches. Winterkill is prevalent, especially in highly eutrophic, shallow ponds, during severe winter conditions of early ice cover and heavy snowfall.

GEOLOGY

During the glacial epoch several glaciers advanced across the region now occupied by Will County. The more recent Wisconsian stage or age has been the most influential by depositing large amounts of ground up rock materials, thus forming our present day topography. The morainal ridges were deposited by these last glaciers. Glacial drift was deposited over the Silurian dolomite of the Nigarian Series. The thickness of the drift varies greatly. Bedrock outcrops are common along the Des Plaines and Kankakee rivers, particularly along stream bottoms and along bluffs.

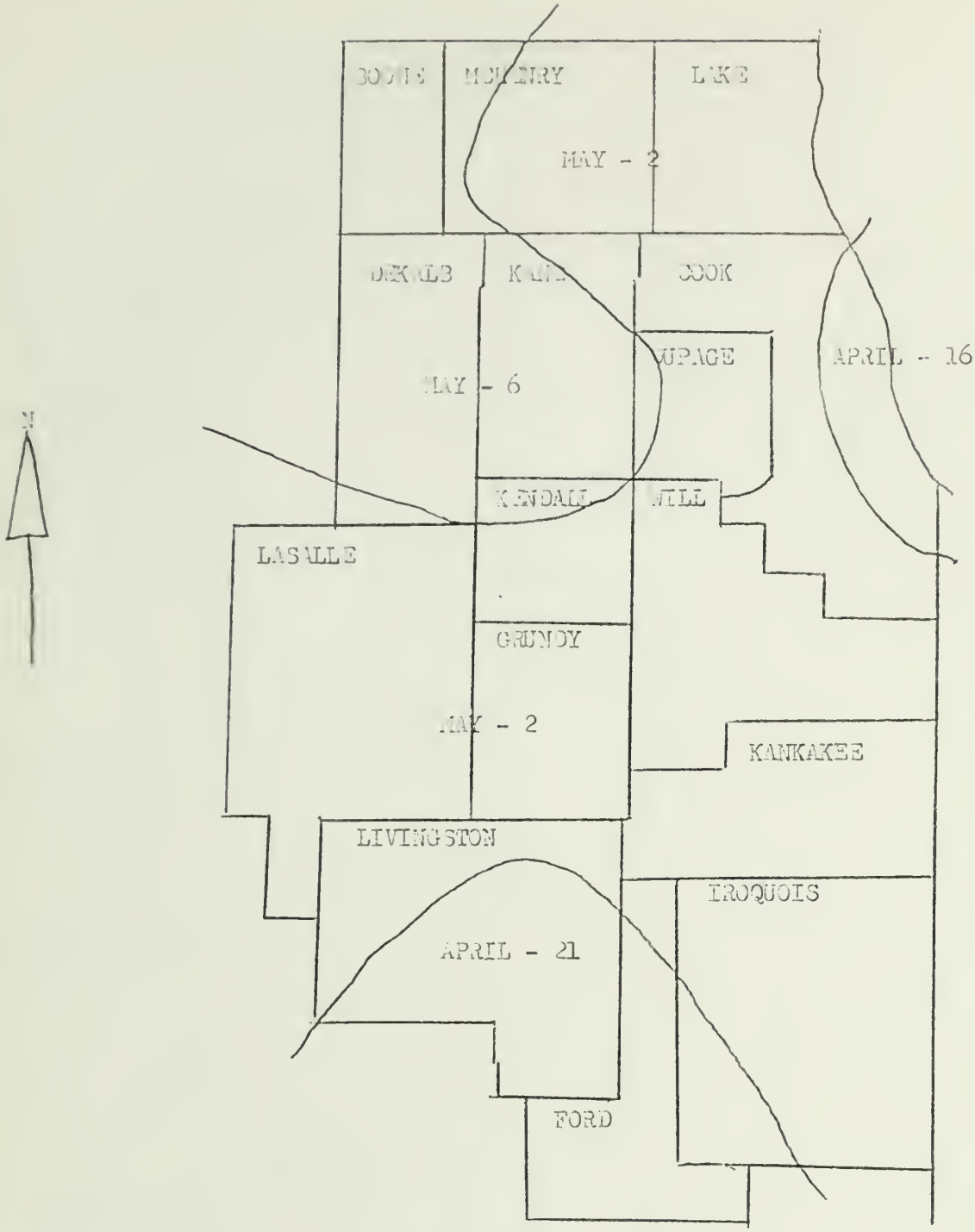
TABLE 1

CLIMATOLOGICAL DATA BY MONTH FOR WILL COUNTY

	TEMPERATURES					24-HR. MAX. PRECIP.			MAX. MO. AMT. SNOW			GREATEST SNOW DEPTH ON GROUND		
MONTH	DAILY MEAN	MEAN DAILY MAXIMUM	MEAN DAILY MINIMUM	HIGHEST RECORDED	LOWEST RECORDED	INCHES	MONTH	YEAR	INCHES	MONTH	YEAR	INCHES	MONTH	YEAR
JAN.	24.6	32.9	16.4	67	17	2.47	JAN.	1960	21.5	JAN.	1962	11	JAN.	1962
FEB.	27.5	36.5	19.3	69	-22	1.91	FEB.	1942	22.4	FEB.	1933	12	FEB.	1950
MAR.	36.4	44.6	27.1	80	-18	3.14	MAR.	1944	12.8	MAR.	1965	6	MAR.	1956
APR.	50.0	68.4	38.5	89	19	4.96	APR.	1947	11.0	APR.	1938	2	APR.	1967
MAY	59.3	73.2	47.3	94	26	2.51	MAY	1966	1.0	MAY	1940	--	---	----
JUNE	70.1	82.3	58.4	102	34	3.20	JUNE	1954	----	---	----	--	---	----
JULY	74.0	86.1	61.9	100	41	5.37	JULY	1957	----	---	----	--	---	----
AUG.	72.8	84.7	61.0	101	42	3.20	AUG.	1946	----	---	----	--	---	----
SEPT.	64.8	78.2	52.4	100	26	5.32	SEPT.	1942	1.0	SEPT.	1942	--	---	----
OCT.	54.3	66.2	42.0	92	15	2.80	OCT.	1941	3.0	OCT.	1967	--	---	----
NOV.	39.2	48.9	30.1	81	-10	1.60	NOV.	1946	9.9	NOV.	1940	7	NOV.	1951
DEC.	27.6	36.9	19.3	64	-20	1.95	DEC.	1965	21.9	DEC.	1951	15	DEC.	1951
ANNUAL	50.0	61.6	39.5	102	-20	5.37	YEAR	1957	22.4	YEAR	1933	15	YEAR	1951

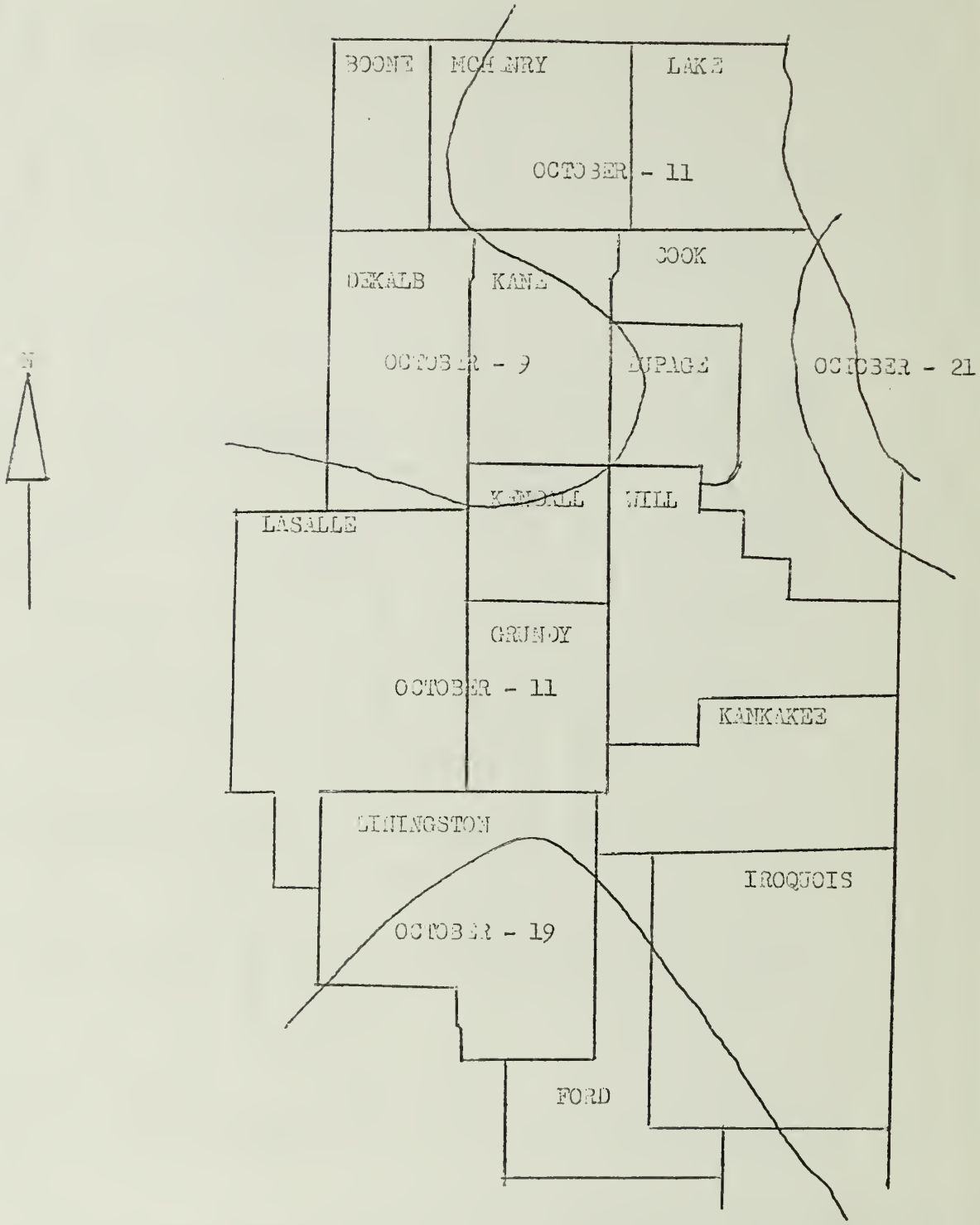
DATA OBTAINED FROM ILLINOIS STATE WATER SURVEY, URBANA, ILLINOIS, DEPARTMENT OF AGRICULTURE, U. S. WEATHER BUREAU AND W. DENMARK, ILLINOIS STATE CLIMATOLOGIST.

Figure 5. AVERAGE DATES OF LAST KILLING FROST IN SPRING FOR NORTHEASTERN ILLINOIS



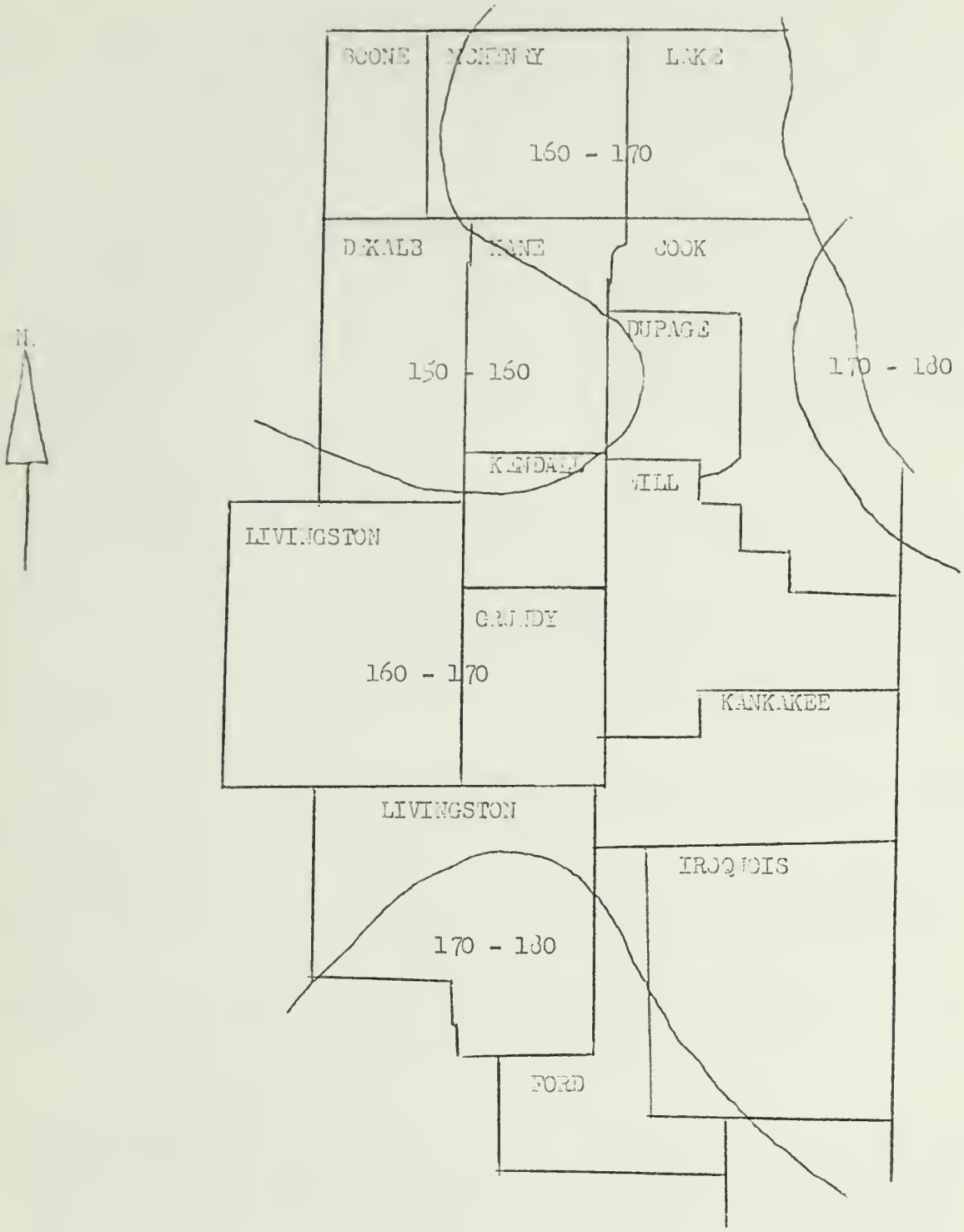
Source: U.S.D.A. Soil Conservation Service. 1967. Resource Study of Northeastern Illinois.

Figure 7. AVERAGE DATES OF FIRST KILLING FROST IN FALL FOR NORTHEASTERN ILLINOIS



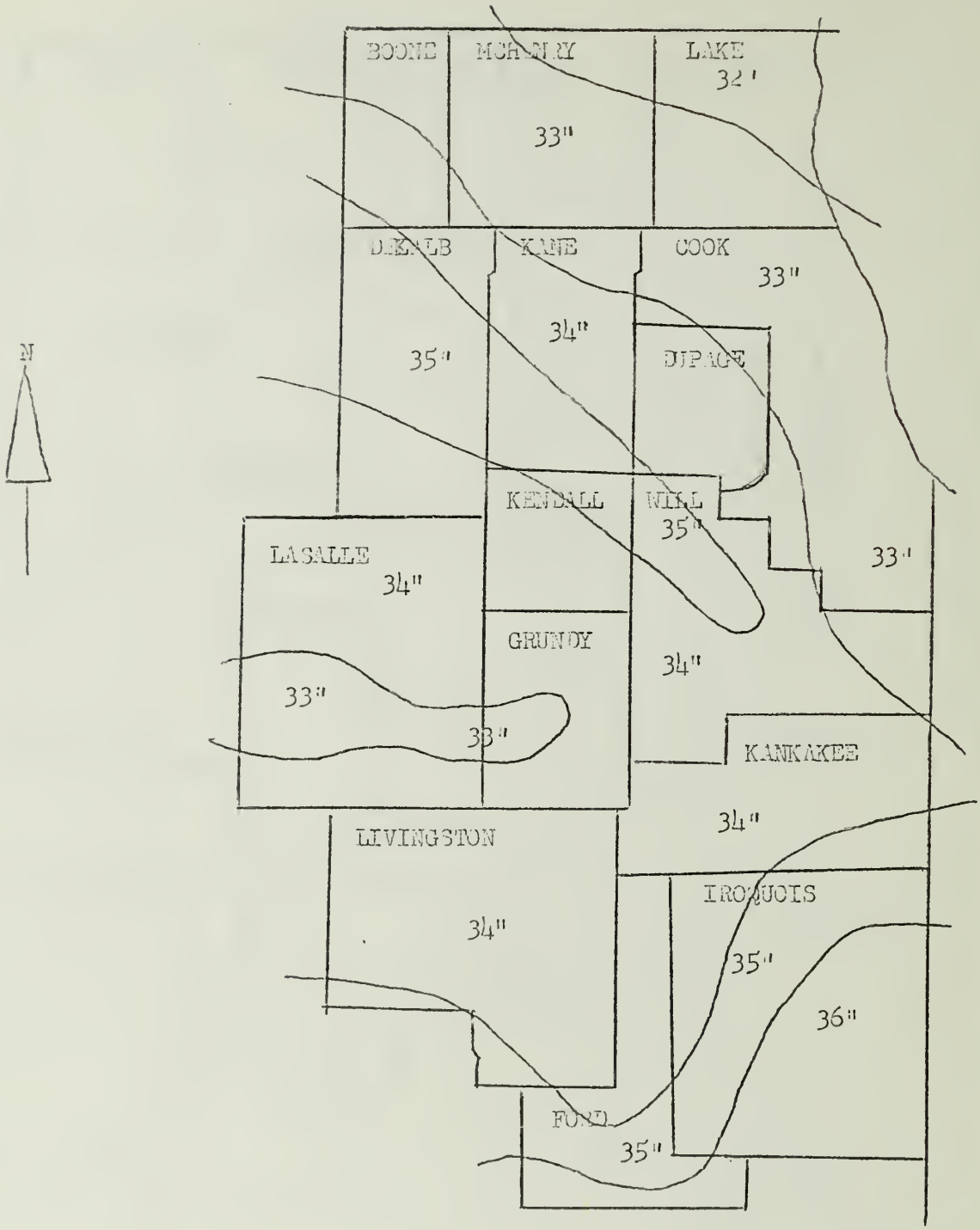
Source: U.S.D.A. Soil Conservation Service. 1967. Resource Study of Northeastern Illinois.

Figure 8. AVERAGE NUMBER OF DAYS WITHOUT KILLING FROST FOR NORTHEASTERN ILLINOIS



SOURCE: U.S.D.A. Soil Conservation Service. 1967. Resource Study of Northeastern Illinois.

Figure 9. AVERAGE ANNUAL PERCIPITATION(INCHES) FOR NORTHEASTERN ILLINOIS



Source: U.S.D.A. Soil Conservation Service. 1967. Resource Study of Northeastern Illinois.

Much of the northern and eastern parts of the county are covered with 100 to 150 feet or more of till. Outwash covers much of the southwest part to depths of 10 to 20 feet and more. Also, some sandy and gravelly outwash lies beneath several feet of till in many parts of the county. The surface cover of loess is mostly less than 2 feet thick and is probably not more than one foot thick in the extreme eastern part. Because all the moraines and intermorainal areas are classified as Cary age, all surficial loess is of Cary age or younger. This is considered late Wisconsin glaciation.

DRAINAGE

The drainage of Will County is distributed among three river basins (Fig. 10). The Kankakee River Basin via its principal river, the Kankakee, drains the southern portions of the county. The entire river system has a drainage area of about 2,218 square miles in Illinois. Some of the Kankakee's major tributaries in Will County include: Forked Creek and its branches, Walnut Creek, Trim Creek and Prairie Creek. The Des Plaines River Basin via its principal river, The Des Plaines River, drains the northern portion of the county. The Du Page River drains part of the northwest portions of Will County. The Du Page, itself is a tributary to the Des Plaines River and empties into the Des Plaines at Channahon.

The Du Page River has a drainage area of about 377 square miles with small portions in Cook and Kane counties, but it primarily drains Du Page and Will counties. The West Branch has a total drainage area of 125 square miles involving Cook, Du Page and Will counties. The west branch originates in Schaumberg, Illinois (Cook County) from whence it flows southward for about 26 miles where it joins with the east branch in Will County, approximately 2.5 miles west of Bolingbrook. The East Branch of the Du Page River drains about 84 square miles in Du Page and Will counties and originates in Bloomingdale, Illinois. From here it flows south for about 17 miles where it meets with the west branch in Will County.

The Des Plaines River System has a drainage area of about 1,800 square miles. Some of the Des Plaines River's major tributaries in Will County include: The Du Page River, Jackson Creek, Hickory Creek and Spring Creek.

The construction of the Illinois and Michigan Canal and the Chicago Sanitary and Ship Canal has altered the natural drainage of the Des Plaines and Du Page rivers to some degree.

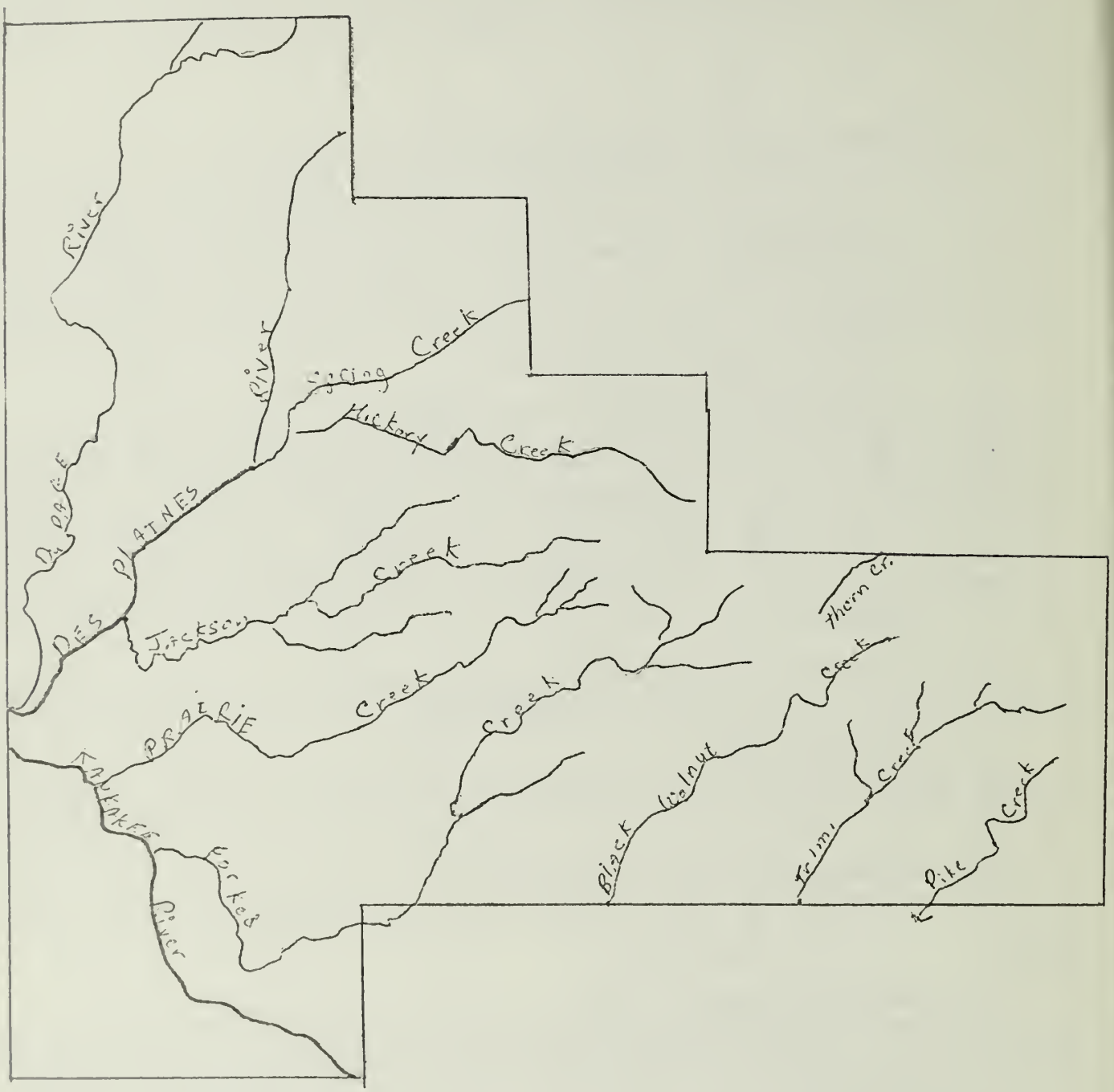
The three major river basins in Will County: The Kankakee River, the Du Page River and the Des Plaines River, all flow into the Illinois River.

SOILS

In the geological time scale the soils of Will County are young. The soils are weakly developed or underdeveloped to moderately well developed. They have developed from parent material that was deposited by receding glaciers approximately 25,000 years ago (late Wisconsian). These glaciers not only removed old soils, but also deposited large amounts of freshly ground up rock materials, in which our present day soils are formed. Some of these were unsorted, others were sorted by flowing waters from melting glaciers. These deposits are known as outwash or as lacustrine sediments. Finally a thin surficial covering of loess was blown onto most of the till and outwash areas.

Thickness of glacial drift (till, outwash and loess) varies greatly. Bedrock outcrops are common along the Des Plaines and Kankakee rivers. Most of the northern and eastern parts of the county are covered with 100 to 150 feet of till. Outwash covers much of the southwestern part to depths of 10 to 20 feet. The surface cover

Fig. 10 DRAINAGE MAP OF WILL COUNTY

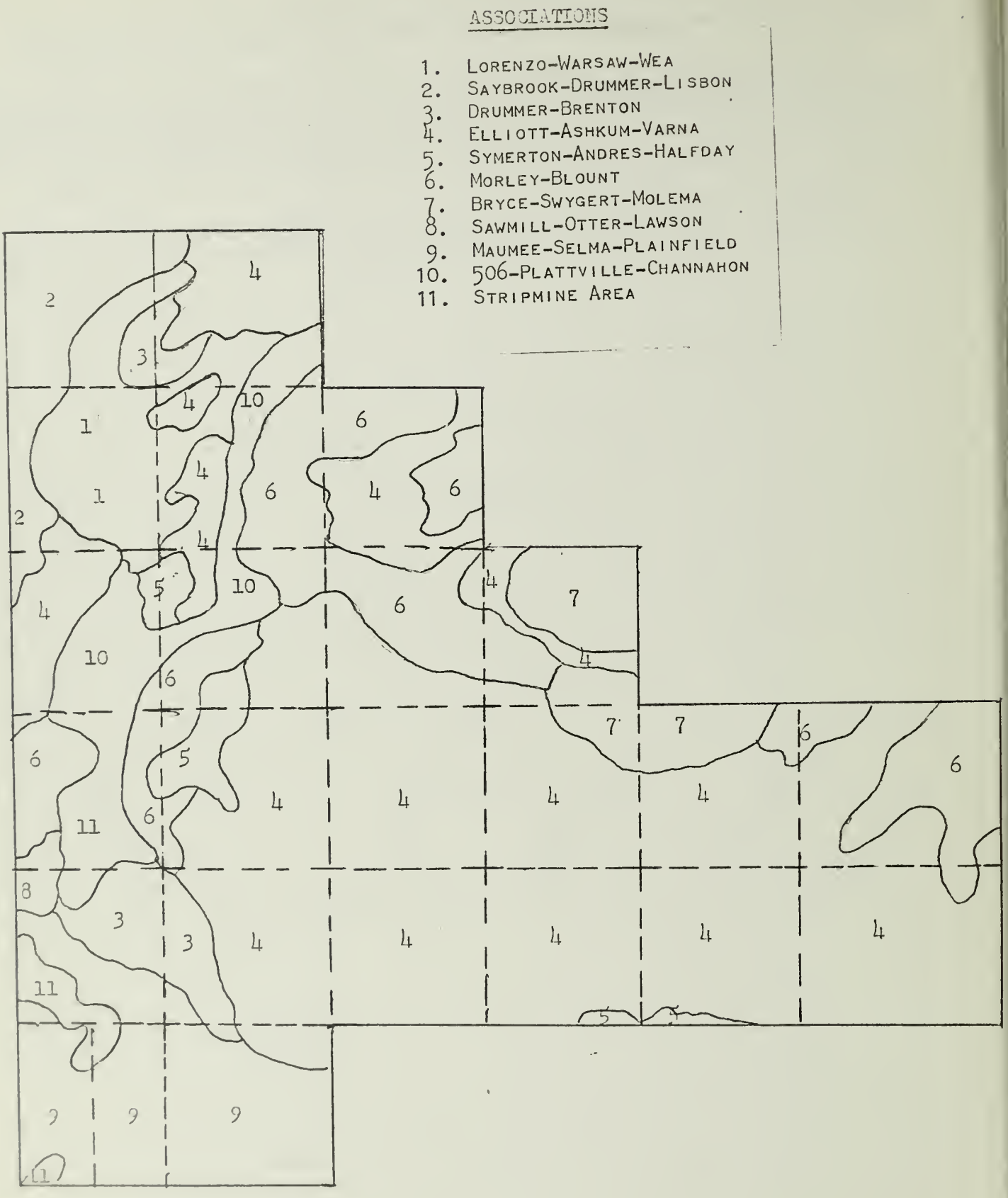


OF LOESS IS MOSTLY LESS THAN TWO FEET THICK AND IS PROBABLY NOT MORE THAN ABOUT 1 FOOT THICK IN THE EXTREME EASTERN PART OF THE COUNTY (WILL COUNTY SOILS, U.S.D.A.).

THE SOILS OF WILL COUNTY WERE DEVELOPED BY THE ACTION OF CLIMATIC FORCES, TOGETHER WITH PLANTS, ANIMALS AND OTHER RESIDUES. TOPOGRAPHY, OR RELIEF, AND DEPTH OF WATER TABLE INDIRECTLY AFFECTED SOIL FORMATIONS BY INFLUENCING AERATION AND DRAINAGE. IN GENERAL, THE LENGTHS OF TIME THAT PARENT MATERIALS WERE SUBJECTED TO THESE FORCES DETERMINED THE DEGREE TO WHICH THE PRESENT SOILS HAVE WEATHERED AND DEVELOPED.

FIGURE 11 IS A MAP SHOWING THE LOCATION OF THE GENERAL SOIL ASSOCIATION GROUPS IN WILL COUNTY. TABLE 2 GIVES A BRIEF DESCRIPTION OF EACH SOIL ASSOCIATION GROUP.

FIGURE 11. GENERAL SOIL MAP OF WILL COUNTY



Source: U.S.D.A., Soil Conservation Service, 1967. Resource Study of Northeast Illinois.

TABLE 2

DESCRIPTION OF GENERAL SOIL AREAS OF WILL COUNTY

AREAS DOMINATED BY SOILS DEVELOPED FROM MEDIUM TEXTURED MATERIALS OVER CALCAREOUS GRAVELS.

1. LORENZO-WARSAW-WEA ASSOCIATION: DARK-COLORED LEVEL TO SLOPING SOILS DEVELOPED FROM ONE TO FOUR FEET OF MEDIUM TEXTURED MATERIAL OVER CALCAREOUS SANDS AND GRAVELS.

AREAS DOMINATED BY SOILS DEVELOPED FROM DEEP, MEDIUM-TEXTURED MATERIALS.

2. SAYBROOK-DRUMMER-LISBON ASSOCIATION: DARK-COLORED, LEVEL TO SLOPING, MODERATELY PERMEABLE SOILS DEVELOPED FROM 20 TO 40 INCHES OF LOESS OVER CALCAREOUS LOAM GLACIAL TILL.

3. DRUMMER-BRENTON ASSOCIATION: DARK-COLORED, NEARLY LEVEL, MODERATELY PERMEABLE, SOILS DEVELOPED FROM 40 TO 60 INCHES OF LOESS OVER MEDIUM TEXTURED STRATIFIED OUTWASH OR TILL.

AREAS DOMINATED BY SOILS DEVELOPED FROM MODERATELY FINE-TEXTURED MATERIALS.

4. ELLIOTT-ASHKUM-VARNA ASSOCIATION: DARK-COLORED, GENTLY SLOPING TO SLOPING, MODERATELY SLOWLY PERMEABLE SOILS DEVELOPED FROM CALCAREOUS SILTY CLAY LOAM GLACIAL TILL.

5. SYMERTON-ANDRES-HALFDAY ASSOCIATION: DARK-COLORED, GENTLY SLOPING TO SLOPING, MODERATELY SLOWLY PERMEABLE SOILS DEVELOPED FROM 20 TO 40 INCHES OF MEDIUM-TEXTURED MATERIAL OVER CALCAREOUS SILTY CLAY LOAM GLACIAL TILL.

6. MORLEY-BLOUNT ASSOCIATION: LIGHT-COLORED, GENTLY SLOPING TO STEEP, MODERATELY SLOWLY PERMEABLE SOILS DEVELOPED FROM CALCAREOUS SILTY CLAY LOAM GLACIAL TILL.

AREAS DOMINATED BY SOILS DEVELOPED FROM FINE-TEXTURED MATERIALS.

7. BRYCE-SWYGERT-MOKENA ASSOCIATION: DARK-COLORED, GENTLY SLOPING TO SLOPING, SLOWLY PERMEABLE SOILS DEVELOPED FROM CALCAREOUS SILTY CLAY GLACIAL TILL OR LAKE BED SEDIMENTS.

AREAS DOMINATED BY SOILS DEVELOPED FROM ALLUVIAL MATERIALS.

8. SAWMILL-OTTER-LAWSON ASSOCIATION: DARK-COLORED, NEARLY LEVEL, MODERATELY PERMEABLE SOILS DEVELOPED FROM MEDIUM TO MODERATELY FINE-TEXTURED ALLUVIAL MATERIALS.

AREAS DOMINATED BY SOILS DEVELOPED FROM SANDY MATERIALS.

9. MAUMEE-SELMA-PLAINFIELD ASSOCIATION: DARK AND LIGHT-COLORED, NEARLY LEVEL TO STRONGLY SLOPING, RAPIDLY PERMEABLE SOILS DEVELOPED FROM LOOSE OUTWASH OR AEOLIAN SANDS.

TABLE 2 (CONT'D.)

DESCRIPTION OF GENERAL SOIL AREAS OF WILL COUNTY

AREAS DOMINATED BY SOILS DEVELOPED FROM COARSE OR MEDIUM-TEXTURED MATERIAL OVER LIMESTONE BEDROCK.

10. 506-PLATTVILLE-CHANNAHON ASSOCIATION: DARK-COLORED, NEARLY LEVEL TO STEEP, MODERATE TO RAPIDLY PERMEABLE SOILS DEVELOPED FROM 1 TO 3 FEET OF COARSE OR MEDIUM-TEXTURED MATERIALS OVER LIMESTONE BEDROCK.

AREAS THAT HAVE BEEN STRIP MINED.

11. STRIP MINE AREAS: SURFACE MINING FOR COAL, CLAY, STONE, SAND, GRAVEL OR OTHER MINERALS BY REMOVING THE OVERBURDEN LYING ABOVE NATURAL DEPOSITS AND MINING DIRECTLY FROM THE NATURAL DEPOSITS THEREBY EXPOSED.

*SOURCE: U.S.D.A. SOIL CONSERVATION SERVICE, 1967. RESOURCE STUDY OF NORTHEASTERN ILLINOIS, SECTION I.

ALPHABETICAL LISTING AND DESCRIPTION OF MAJOR LAKES AND STREAMS

LAKES

IN ILLINOIS, WE DISTINGUISH LAKES FROM PONDS BY ARBITRARILY SETTING THE MINIMUM SIZE FOR LAKE CLASSIFICATION AT 6.0 ACRES, THOSE SMALLER THAN 6.0 ACRES ARE CLASSIFIED AS PONDS. WE FURTHER CLASSIFY THESE IMPOUNDMENTS BY OWNERSHIP AS FOLLOWS:

1. STATE: ALL IMPOUNDMENTS OWNED AND MAINTAINED BY THE ILLINOIS DEPARTMENT OF CONSERVATION.

2. PUBLIC: ALL IMPOUNDMENTS OWNED BY A GOVERNMENTAL AGENCY.

3. ORGANIZATION: ALL IMPOUNDMENTS OWNED, LEASED OR MAINTAINED BY ANY ORGANIZATION OF 6 OR MORE MEMBERS. THIS INCLUDES THE FOLLOWING TYPE OF ORGANIZATIONS: SPORTSMEN CLUBS, SCOUTS, CHURCH, CIVIC, FRATERNAL, ASSOCIATIONS, SUBDIVISIONS, COUNTRY CLUBS, INDUSTRIAL AND INSTITUTIONS.

4. PRIVATE: ALL IMPOUNDMENTS PRIVATELY OWNED OR LEASED WITH NO FEE ASSESSED FOR THEIR USE.

5. FEE: ALL IMPOUNDMENTS PRIVATELY OWNED OR LEASED WHICH CHARGE A FEE FOR FISHING.

IN THIS REPORT ONLY EXISTING MAJOR LAKES OR PONDS THAT PROVIDE SOME DEGREE OF FISHING ARE LISTED. EACH IS FIRST DESCRIBED BY NAME, THE LEGAL DESCRIPTION, OWNERSHIP STATUS, SURFACE ACRES, MAXIMUM DEPTH, SHORELINE LENGTH AND YEAR CONSTRUCTED.

A BRIEF NARRATIVE PARAGRAPH DESCRIBES EACH IMPOUNDMENT AND CONTAINS INFORMATION ON LOCATION FROM NEAREST TOWN, MAJOR USAGE, AQUATIC PLANTS, MAJOR SPECIES OF FISH, FISHERMEN USAGE, PAST PROBLEMS AND OTHER PERTINENT DATA.

AREA #1 OUTDOOR CLUB; T33N, R9E, SECTION 30; ORGANIZATION; PIT #1; SURFACE ACRES = 194.0; MAXIMUM DEPTH = 60.0 FEET; SHORELINE LENGTH = 6.95 MILES; CONSTRUCTED = 1930'S. PIT #2; SURFACE ACRES = 65.0; MAXIMUM DEPTH = 35.0 FEET, SHORELINE LENGTH = 8.48 MILES (SHORELINE VERY IRREGULAR), CONSTRUCTED = 1930'S.

AREA #1 OUTDOOR CLUB PITS #1 AND #2 ARE STRIP MINE LAKES LOCATED 5.0 MILES NORTHEAST OF COAL CITY. BOTH LAKES ARE LONG AND NARROW AND ARE CONNECTED BY A TILE AT THEIR EASTERN MOST BOUNDARIES. PRIMARY USAGE OF PIT #1 IS MOTOR BOATING AND FISHING, WHILE THE PRIMARY USAGE OF PIT #2 IS FISHING. THE FISH POPULATION OF THESE STRIP MINES ARE TYPICAL OF MOST STRIP MINE LAKES IN WILL COUNTY CONSISTING OF: BLUEGILL, LARGEMOUTH BASS, CHANNEL CATFISH, WALLEYE, NORTHERN PIKE, GIZZARD SHAD, GREEN SUNFISH, CRAPPIE, AND CARP. FISHING PRESSURE IS LIGHT TO MODERATE WITH FAIR SUCCESS FOR CHANNEL CATFISH, BLUEGILL AND LARGEMOUTH BASS.

SELECTIVE CHEMICAL TREATMENT FOR GIZZARD SHAD HAS BEEN CARRIED OUT IN THE PAST IN PIT #2, WITH VERY GOOD RESULTS.

ACTING UNDER RECOMMENDATIONS BY THE DISTRICT FISHERY BIOLOGIST, THE CLUB HAS INITIATED SUCH PROGRAMS AS PUT AND TAKE FISHING FOR CHANNEL CATFISH AND TROUT, AND HAS BEEN DEVELOPING A SMALL POND FOR REARING OF LARGEMOUTH BASS TO SUPPLEMENT THE EXISTING BASS POPULATION OF BOTH PITS.

AS IS THE CASE WITH MOST OF THESE LARGER STRIP MINES, THE SHORELINE IS INACCESSIBLE TO BANK FISHERMEN DUE TO THE STEEP SLOPES OF THE SPOILS PILED ALONG THE SHORELINES ALONG WITH THE HEAVY GROWTH OF SHRUBS AND OTHER VEGETATION. FERTILITY OF THESE LAKES IS LOW DUE TO POOR SOILS (SPOILS) IN THE EXISTING WATERSHED. THERE IS LITTLE

LITTORAL AREA FOR FOOD PRODUCTION, AND DUE TO THE SIZE AND DEPTH OF THE LAKES, FERTILIZING OR ANY OTHER SORT OF CHEMICAL CONTROL IS VERY COSTLY AND FOR THE MOST PART UNPRODUCTIVE.

AQUATIC VEGETATION FOUND IN BOTH PITS INCLUDES: CATTAILS, CHARA, LEAFY PONDWEED, RICHARDSON'S PONDWEED, PARROT FEATHER, AMERICAN PONDWEED AND FILAMENTOUS ALGAE.

FISHING PRESSURE IS MODERATE TO HEAVY. THE CLUB ALSO OFFERS FACILITIES FOR CAMPING, SWIMMING AND LIMITED HUNTING.

ACCESS IS LIMITED TO CLUB MEMBERS AND GUESTS.

ARROWHEAD CLUB LAKE; T32N, R9E, SECTIONS 28 & 33; ORGANIZATION; SURFACE ACRES = 100; MAXIMUM DEPTH = 51.0 FEET; SHORELINE LENGTH = 5.50 MILES; CONSTRUCTED = 1930'S.

ARROWHEAD CLUB LAKE IS ONE OF THE LARGEST STRIP MINES LOCATED ON THE CLUB'S PROPERTY. THERE ARE NUMEROUS SMALLER STRIP MINE IMPOUNDMENTS (16 IN ALL) WHICH GIVE A TOTAL SURFACE WATER ACREAGE FOR THE CLUB OF 131.20 ACRES. THE LAKE IS LONG AND NARROW, AND AS IS THE CASE WITH MOST STRIP MINE LAKES, IS FAIRLY CLEAR AND DEEP. CHARA, CATTAILS, ALGAE AND VARIOUS SPECIES OF PONDWEED ARE EXAMPLES OF AQUATIC VEGETATION THAT GROW IN THE SHALLOWER WATER, BUT DOES NOT OFFER ANY PROBLEMS. THE FISH POPULATION IS TYPICAL: BLUEGILL, LARGEMOUTH BASS, CRAPPIE, CHANNEL CATFISH, CARP, BULLHEADS AND GREEN SUNFISH. FISHING PRESSURE IS LIGHT TO MODERATE WITH FAIR SUCCESS FOR BASS. ACCESS TO THE LAKE IS RESTRICTED TO CLUB MEMBERS AND GUESTS ONLY.

BASS AND GILL CLUB LAKE; T36N, R9E, SECTION 2; ORGANIZATION; SURFACE ACRES = 35.5; MAXIMUM DEPTH = 10 FEET; SHORELINE LENGTH = 4.0 MILES; CONSTRUCTED = 1930'S.

BASS AND GILL CLUB LAKE IS A GRAVEL PIT LOCATED 2.0 MILES NORTHEAST OF PLAINFIEL THE LAKE HAS AN IRREGULAR SHORELINE AND CONTAINS MANY SMALL ISLANDS. AT TIMES THE VEGETATION BECOMES A PROBLEM, THUS SOME ALGAE CONTROL HAS BEEN COMPLETED IN THE PAST. ELODEA, SAGO PONDWEED, BULRUSH, CATTAILS AND FLOATING LEAF PONDWEED ALSO OCCUR IN THE LAKE, BUT DOES NOT PRESENT A PROBLEM. THE PRIMARY USAGE OF THE LAKE IS FOR SPORT FISHING. THE FISH POPULATION PRESENTLY CONSIST OF LARGEMOUTH BASS, BLUEGILL, CHANNEL CATFISH, BLACK BULLHEADS, GREEN SUNFISH, A VARIETY OF MINNOW SPECIES, AND CARP. UNFORTUNATELY, THE CARP HAVE OVER POPULATED THE LAKE THUS MAKING GOOD FISHING A THING OF THE PAST. TOTAL REHABILITATION OF THE LAKE HAS BEEN RECOMMENDED, BUT DUE TO SOME INTERNAL PROBLEMS, HAS NOT BEEN ACCEPTED AS A METHOD OF IMPROVEMENT. FISHING PRESSURI IS MODERATE, BUT WITH LITTLE SUCCESS. ACCESS TO THE LAKE IS LIMITED TO MEMBERS AND GUESTS ONLY.

BEECHER SPORTSMEN CLUB LAKE; T33N, R15E, SECTION 7; ORGANIZATION; SURFACE ACRES = 2.2 MAXIMUM DEPTH = 9.0 FEET; SHORELINE LENGTH = 0.24 MILES; CONSTRUCTED = 1920'S.

BEECHER SPORTSMEN CLUB LAKE IS AN ABANDONED CLAY PIT LOCATED 2.5 MILES NORTHWEST OF BEECHER. VEGETATION IS NOT PRESENT IN THE LAKE TO ANY DEGREE. PRIMARY USAGE OF THE LAKE IS FISHING AND HUNTING. THE FISH POPULATION CONSISTS OF LARGEMOUTH BASS, CHANNEL CATFISH, BLUEGILL, GREEN SUNFISH AND BULLHEADS. FISHING PRESSURE IS MODERATE WITH FAIR SUCCESS FOR BLUEGILLS AND CHANNEL CATFISH. ACCESS IS LIMITED TO CLUB MEMBERS AND GUESTS ONLY.

BOY SCOUTS POND (CITY LAKE); T36N, R9E, SECTION 15; PUBLIC; SURFACE ACRES = 1.5; MAXIMUM DEPTH = 5.0 FEET; SHORELINE LENGTH = 0.3 MILE.

BOY SCOUTS POND IS LOCATED IN PLAINFIELD. VEGETATION CAN BECOME A PROBLEM DUE TO THE SHALLOWNESS OF THE POND. THE PRIMARY USAGE OF THE POND IS FISHING, BUT AGAIN DUE TO ITS SHALLOWNESS, THE POND IS SUBJECT TO WINTERKILL. THE FISH POPULATION

CONSISTS OF GREEN SUNFISH, BLUEGILL, LARGEMOUTH BASS AND CARP. ACCESS IS AVAILABLE TO THE PUBLIC.

BRAIDWOOD RECREATION CLUB; T32N, R9E, SECTIONS 3,4,9,10; ORGANIZATION; NUMEROUS STRIP MINE LAKES; CONSTRUCTED = 1920'S.

BRAIDWOOD RECREATION CLUB IS A LARGE CLUB CONTROLLING OVER 1,000 ACRES OF LAND AND HAVING 42 BODIES OF WATER WITH A TOTAL SURFACE ACREAGE OF 167.8 ACRES. THE CLUB IS LOCATED AT THE EASTERN EDGE OF BRAIDWOOD. THE LAKES ARE ESSENTIALLY STRIP MINES THAT BECAME FILLED WITH WATER. THE FISHING PRESSURE ON THESE LAKES IS MODERATE, WITH GOOD SUCCESS FOR BLUEGILL, CHANNEL CATFISH, LARGEMOUTH BASS AND TROUT.

THE CLUB IS ECONOMICALLY CAPABLE OF STOCKING LARGE NUMBERS OF ANY SPECIES THEY SO DESIRE, THUS PUT AND TAKE STOCKING IS DONE ON A YEARLY BASIS. THE CLUB HAS RECENTLY INITIATED A PROGRAM OF REARING THEIR OWN CHANNEL CATFISH AND TROUT, WITH SOME DEGREE OF SUCCESS.

CHEMICAL TREATMENT FOR AQUATIC VEGETATION IS COMPLETED ON AN ANNUAL BASIS ON SOME OF THE MORE HIGHLY UTILIZED LAKES AND PONDS.

THE CLUB OFFERS A WIDE VARIETY OF RECREATION FROM FISHING, CAMPING, BOATING, AND SWIMMING TO WATERFOWL AND DEER HUNTING. ACCESS IS LIMITED TO THE CLUB MEMBERS AND GUESTS.

CECO RECREATION CLUB; T33N, R8E, SECTION 19 IN WILL COUNTY (AND 24 & 25 IN GRUNDY COUNTY); ORGANIZATION; SURFACE ACRES = 68.2 ACRES (LARGEST LAKE); MAXIMUM DEPTH = 57.0 FEET; SHORELINE LENGTH = 5.8 MILES; CONSTRUCTED = 1920'S.

CECO RECREATION CLUB IS LOCATED ONE MILE NORTHEAST OF COAL CITY, ILLINOIS. THE CLUB OWNS 960 ACRES OF WHICH 10% IS LOCATED IN WILL COUNTY AND THE REMAINING 90% IN GRUNDY COUNTY. PRESENTLY, A MEMBERSHIP OF 500 FAMILIES ENJOY THE CLUB'S FISHING, PICNICKING, CAMPING AND SWIMMING FACILITIES. THERE ARE FORTY-SEVEN LAKES AND PONDS WITHIN CECO RECREATION CLUB'S BOUNDARIES WITH A TOTAL WATER ACREAGE OF 123.2 ACRES. THE MAJORITY OF THE PONDS RANGE FROM 0.2 ACRES TO 2.5 ACRES, WITH ONLY TWO WATER AREAS OF LAKE CLASSIFICATION (9.4 AND 68.2 ACRES). ALL OF THESE LAKES AND PONDS ARE ABANDONED STRIP MINES WHICH HAVE FILLED WITH WATER. THE LAKES OFFER GOOD FISHING FOR LARGEMOUTH BASS, BLUEGILL AND NORTHERN PIKE. OTHER FISH SPECIES PRESENT WITHIN THE LAKES INCLUDE: CARP, GIZZARD SHAD, GREEN SUNFISH, WALLEYE, REDEAR SUNFISH AND A VARIETY OF MINNOW SPECIES. FISHING PRESSURE IS LIGHT TO MODERATE. AS IS THE CASE WITH MOST OF THESE STRIP MINE LAKES, THE SHORELINES ARE COVERED WITH SHRUBS AND OTHER TERRESTIAL VEGETATION, MAKING BANK FISHING, FOR THE MOST PART, IMPRACTICAL. FERTILITY OF THE WATER IS LOW DUE TO POOR SOILS IN THE EXISTING WATERSHED. THE LAKES OFFER LITTLE LITTORAL AREA FOR FOOD PRODUCTION. THIS COUPLED WITH THE LOW FERTILITY INHIBIT THE CARRYING CAPACITY OF THE LAKES.

CATTAILS, SAGO PONDWEED, BULRUSHES, ELODEA, FLOATING LEAF PONDWEED, ALGAE AND A FEW OTHER AQUATIC PLANTS DO OCCUR IN THESE LAKES, BUT FOR THE MOST PART DO NOT PRESENT MUCH OF A PROBLEM.

SOME OF THE SMALLER ISOLATED PONDS CAN BE MANAGED TO SOME DEGREE, AS SOME HAVE BEEN REHABILITATED IN THE PAST. A FEW OF THE SMALLEST PONDS HAVE BEEN UTILIZED FOR REARING LARGEMOUTH BASS AND CHANNEL CATFISH FOR SUPPLEMENTAL STOCKING INTO THE LARGER LAKES. ACCESS IS LIMITED TO CLUB MEMBERS AND GUESTS.

CLEAR LAKE; T33N, R9E, SECTION 18; ORGANIZATION; SURFACE ACRES = 30.5; MAXIMUM DEPTH = 40 FEET; SHORELINE LENGTH = 2.8 MILES; CONSTRUCTED = 1945.

CLEAR LAKE IS A STRIP MINE WITH THE USUAL STRIP MINE LAKE FEATURES, BEING

INFERTILE, DEEP AND CLEAR. THE LAKE IS LOCATED APPROXIMATELY EIGHT MILES EAST OF MORRIS. FISHING PRESSURE IS LIGHT TO MODERATE WITH THE BEST FISHING IN SPRING FOR LARGEMOUTH BASS AND BLUEGILL. OTHER FISH SPECIES PRESENT INCLUDE: GREEN SUNFISH, BLACK BULLHEADS, GIZZARD SHAD AND CARP.

THE LAKE HAD A PARTIAL TREATMENT COMPLETED ON IT IN 1960 TO REDUCE THE SUNFISH POPULATION. NO OTHER WORK HAS REPORTEDLY BEEN DONE ON THE LAKE SINCE THEN. ACCESS IS LIMITED TO MEMBERS AND GUESTS.

COMMONWEALTH EDISON-DRESEND LAKE; T33N, R8E, SECTION 12; PRIVATE; SURFACE ACRES = 865.0; MAXIMUM DEPTH = 16.0 FEET; CONSTRUCTED = 1971-ARTIFICIAL IMPOUNDMENT.

DRESDEN NUCLEAR POWER STATION IS LOCATED AT THE POINT WHERE THE DES PLAINES AND KANKAKEE RIVERS MERGE TO FORM THE ILLINOIS RIVER, APPROXIMATELY 8.0 MILES SOUTHEAST OF MORRIS, ILLINOIS. THE DRESDEN STATION WAS THE FIRST PRIVATELY OWNED AND FINANCED POWER PLANT IN THE UNITED STATES. THE STATION CONSISTS OF THREE BOILING WATER REACTOR UNITS WHICH PROVIDE A COMBINED 1,800 MEGAWATTS OF ELECTRICAL CAPACITY. UNIT 1 PROVIDES 200 MEGAWATTS AND USES AN OPEN-CYCLE CONDENSER COOLING WATER SYSTEM WHICH EXTRACTS WATER FROM THE KANKAKEE RIVER AND DISCHARGES 170,000 GPM OF HEATED WATER INTO THE ILLINOIS RIVER (INDUSTRIAL BIO-TEST LABORATORIES, INC. 1969). UNITS 2 AND 3 PRODUCE 800 MEGAWATTS EACH AND OPERATE ON A CLOSED-CYCLE CONDENSER COOLING WATER SYSTEM WHICH DISSIPATES HEATED WATER THROUGH THE USE OF APPROXIMATELY 2 MILE LONG SPRAY CANALS AND A 1,300 ACRE COOLING LAKE (INDUSTRIAL BIO-TEST LABORATORIES, INC. 1973).

DRESDEN COOLING LAKE IS A DUAL COUNTY LAKE, WITH 865 ACRES IN WILL COUNTY AND 435 ACRES IN GRUNDY COUNTY. IT HAS A MAXIMUM DEPTH OF 16 FEET AND AN AVERAGE DEPTH OF APPROXIMATELY SIX FEET. STONE-CONCRETE FINGERS WHICH TRANSECT THE LAKE TO ALMOST TWO-THIRDS OF ITS WIDTH SEPARATE THE LAKE INTO 5 PARTS. WATER IS DISCHARGED INTO THE LAKE FROM UNITS 2 AND 3 AT THE DRESDEN POWER PLANT. AFTER CIRCULATING THROUGH THE FIVE SECTIONS OF THE LAKE, THE WATER ENTERS TWO, ONE MILE LONG CANALS, EQUIPPED WITH SPRAYERS. HERE THE WATER'S TEMPERATURE IS REDUCED EVEN FURTHER BEFORE BEING REUSED TO COOL THE REACTORS.

ALTHOUGH THE LAKE WAS NOT INTENTIONALLY STOCKED WITH FISH, IT WAS CONTAMINATED BY FISHES FROM THE KANKAKEE, DES PLAINES AND ILLINOIS RIVERS WHILE FILLING. PRESENTLY, LARGEMOUTH BASS, SMALLMOUTH BASS, CARP, SUCKERS, REDHORSE AND OTHER SPECIES INHABIT THE LAKE.

SINCE DRESDEN COOLING LAKE WAS THE FIRST ONE OF ITS KIND IN THE UNITED STATES, COMMONWEALTH EDISON ACQUIRED THE SERVICES OF PROFESSIONAL RESEARCH COMPANIES TO STUDY THE EFFECTS OF HEATED WATER DISCHARGED INTO THE AQUATIC ENVIRONMENT. ACCESS TO THE LAKE IS RESTRICTED TO AUTHORIZED PERSONNEL ONLY.

DES PLAINES GAME FARM LAKE; T33N, R9E, SECTIONS 15 AND 22; STATE; SURFACE ACRES = 21.4 ACRES, MAXIMUM DEPTH = 9.5 FEET; SHORELINE LENGTH = 1.0 MILE; CONSTRUCTED = 1961.

LAKE MILLIKEN IS AN ARTIFICIAL IMPOUNDMENT LOCATED THREE MILES WEST OF WILMINGTON AND IS THE ONLY STATE OWNED LAKE IN WILL COUNTY AT THE PRESENT TIME. AQUATIC VEGETATION IS A PROBLEM IN THE LAKE DUE TO ITS SHALLOWNESS AND WATER CLARITY. THE LAKE HAD A SEVERE WINTERKILL IN 1968 WHICH JUST ABOUT ERADICATED THE LARGEMOUTH BASS AND BLUEGILL POPULATIONS. FROM 1968 TO 1971 FISHING WAS GOOD ONLY FOR BLACK BULLHEADS. GRADUALLY, HOWEVER, WITH THE AID OF THE STATE FISHERY BIOLOGIST, THE BLUEGILL AND BASS POPULATION BEGAN TO COME BACK. UNFORTUNATELY, IN 1973, A SUMMER KILL RESULTED WHEN THE DISSOLVED OXYGEN LEVEL IN THE WATER WAS REDUCED TO BELOW THE MINIMUM REQUIRED FOR FISH, BY A HEAVY ALGAL BLOOM. ONCE AGAIN THE BASS, BLUEGILL AND NORTHERN PIKE POPULATIONS WERE WIPED OUT, WHILE THE BLACK BULLHEAD SURVIVED. PRESENTLY, IT IS PLANNED TO CHEMICALLY REHABILITATE THE LAKE IN THE SPRING OF 1974 AND RESTOCK WITH REDEAR SUNFISH AND GREEN

SUNFISH HYBRIDS, LARGEMOUTH BASS AND CHANNEL CATFISH FINGERLINGS. FOLLOWING THE REHABILITATION, THE LAKE WILL REMAIN CLOSED UNTIL THE SPRING OF 1976 WHEN IT WILL ONCE AGAIN BE OPEN TO FISHING.

THE AQUATIC VEGETATION IN THE LAKE WILL BE TREATED ANNUALLY, BUT DUE TO THE LARGE NUMBER OF WATERFOWL THAT UTILIZE THE LAKE IN THE FALL OF THE YEAR, THE VEGETATION WILL NEVER BE COMPLETELY ERADICATED. IN THE FALL OF THE YEAR FISHING IS CLOSED ON THE LAKE SO AS TO SERVE AS A WATERFOWL REST AREA.

ACCESS IS AVAILABLE TO THE PUBLIC BUT NO BOATS ARE ALLOWED ON THE LAKE. BANK FISHING ALONE IS PERMITTED.

WITHIN THE NEAR FUTURE CAMPING FACILITIES WILL ALSO BE AVAILABLE NEAR THE LAKE AND PICNICKING IS PRESENTLY AVAILABLE.

IZAAK WALTON LEAGUE-LAKE DOWNS; T34N, R13E, SECTION 32, ORGANIZATION; SURFACE ACRES = 40.0; MAXIMUM DEPTH = 15 FEET; SHORELINE LENGTH = 2 MILES; CONSTRUCTED = 1916.

LAKE DOWNS IS LOCATED 2 MILES SOUTH OF MONEE. THE LAKE IS OWNED BY THE ILLINOIS CENTRAL RAILROAD AND IS LEASED BY IZAAK WALTON LEAGUE OF AMERICA, CHAPTER 54.

THE LAKE IS GENERALLY BOOT SHAPED WITH A DAM THAT IS ACTUALLY A RAILROAD TRACK BED. PROBLEMS THAT HAVE OCCURRED IN THE PAST AND STILL PRESENT A PROBLEM ARE SILTATION AND AN UNDESIRABLE FISH POPULATION. LAKE DOWNS HAS MANY SMALL SUNFISH PLUS MANY UNDESIRABLES SUCH AS CARP, SUCKERS, CRAPPIES AND SHINERS. FURTHER FISHING PROSPECTS ARE POOR, BUT IF THE LAKE WAS TOTALLY REHABILITATED, RESTOCKED AND MANAGED PROPERLY, A VERY GOOD SPORT FISHERY COULD BE SUSTAINED. VERY LITTLE AQUATIC VEGETATION IS PRESENT, MAINLY DUE TO THE ABUNDANCE OF CARP AND OTHER BOTTOM FEEDING FISH THAT KEEP THE LAKE RELATIVELY TURBID. ACCESS TO THE LAKE IS LIMITED TO CLUB MEMBERS AND GUESTS.

JOLIET BEACH CLUB; T33N, R10E, SECTION 22; ORGANIZATION; SURFACE ACRES = 14.0; MAXIMUM DEPTH = 42.0 FEET; SHORELINE LENGTH = 0.68 MILES; CONSTRUCTED = 1930'S.

JOLIET BEACH CLUB IS A STONE QUARRY LAKE LOCATED IN JOLIET. THE LAKE IS TRIANGULAR IN SHAPE. AQUATIC VEGETATION DOES PRESENT A PROBLEM TO SOME DEGREE. PARROT FEATHER IS THE PRIMARY AQUATIC WEED PRESENT AND IS LOCATED ALONG THE SHORELINE OUTWARD INTO 10 FEET OF WATER. PRIMARY USAGE OF THE LAKE IS LIMITED TO FISHING AND SWIMMING. THE FISH POPULATION IS TYPICAL OF MOST ISOLATED LAKES IN WILL COUNTY, CONSISTING OF LARGEMOUTH BASS, BLUEGILL, WALLEYE, GRASS PIKE, AND NUMEROUS MINNOW SPECIES. FISHING PRESSURE IS LIGHT TO MODERATE WITH SOME SUCCESS FOR BLUEGILL AND BASS. ACCESS IS LIMITED TO CLUB MEMBERS AND GUESTS.

JOLIET JUNIOR COLLEGE LAKE; T35N, R9E, SECTION 14; ORGANIZATION; SURFACE ACRES = 11.0; MAXIMUM DEPTH = 8.0 FEET; SHORELINE LENGTH = 0.81 MILE.

JOLIET JUNIOR COLLEGE LAKE IS AN ARTIFICIAL IMPOUNDMENT LOCATED NEAR THE JOLIET AIRPORT. THE LAKE WAS CREATED BY DAMMING OFF ROCK RUN CREEK. THE LAKE ITSELF IS IN VERY POOR CONDITION, WITH DEBRIS THROUGHOUT AND HEAVY SILTATION BY ROCK RUN CREEK. THE FISH POPULATION PRESENT IS TYPICAL OF A LAKE-STREAM COMBINATION CONSISTING OF: CARP, BLACK BULLHEADS, GOLDEN ROACH, LARGEMOUTH BASS, PUMPKINSEED SUNFISH, BLUEGILL, CREEK CHUBS AND NUMEROUS OTHER MINNOW SPECIES. FISHING PRESSURE IS HEAVY WITH FAIR SUCCESS FOR BULLHEADS AND CARP. AQUATIC VEGETATION ALSO IS A VERY SEVERE PROBLEM, WITH THE LAKE CHOKED WITH WEEDS BY THE END OF JUNE. PLANS HAVE BEEN MADE TO DRAIN THE LAKE, CLEAN AND DEEPEN IT. ACCESS AT THE PRESENT TIME IS OPEN TO ANYONE WHO WISHES TO FISH THE LAKE.

Lily Cache Rod and Gun Club Lake; T36N, R9E, Section 11; Organization; Surface Acres = 23.0 (4 lakes)

This club is located one mile northeast of Plainfield. The largest of the four lakes is 15 acres. Some aquatic vegetation problems have been experienced in the past in all four lakes. The primary use of these lakes is for fishing, swimming and hunting. Fishing success in the past has been fair. The primary species present are: largemouth bass, bluegill, channel catfish, crappie. Access is limited to members and guests.

Minus 300 Club; T37N, R9E, Section 35; Organization; Surface Area = 116.0 acres; Maximum Depth = 17.0 feet; Shoreline Length = 2.1 miles; Constructed = Late 1950's.

Minus 300 Club Lake is an abandoned gravel pit owned by Material Service Corporation of Chicago. Aquatic vegetation is not a problem in the lake due to the dominate populations of common white suckers and carp. Both of these species are bott feeders and tend to keep the entire lake quite turbid. The lake has an irregular shor line and is isolated from any and all creeks or streams. Besides carp and suckers, largemouth bass, bluegill, green sunfish, golden shiners and black bullheads are present.

Due to the large size of the lake and the nonownership of the lake by the club, club members are hesitant to invest the rather large sum of money that would be required to completely rehabilitate the lake. In lieu of this option, the club has started a progam of supplemental stockings of catchable size largemouth bass, channel catfish and northern pike. Access is limited to club members.

New Lenox Recreation Club; T32N, R9E, Section 3; Total Surface Acres = 20.3 acres (5 lakes) Blue Lake = 1.3 acres, Bent Lake = 3.0 acres, Marsh Lake = 4.0 acres, Big Lake = 10.0 acres, East Lake = 2.0 acres; Organization; Constructed 1930's.

New Lenox Recreation Club is located 1.25 miles northeast of Braidwood. The club property is fairly small, with a total land acreage of about 50 acres. All the lakes are abandoned strip mines and for this reason are not very productive. The lakes are used primarily for fishing but one lake does have a beach. Fishing success is fair for largemouth bass, bluegill and channel catfish. The club has tried rearing channel catfish in one of their smaller lakes, but without much success. Aquatic vegetation is not a problem, with only small amounts of filamentous algae, some submergent vegetation and cattails along the shoreline. Access is only to club members and guests.

Peotone Sportsmen Club; T33N, R13E, Section 18; Total Surface Acres = 1.5 acres; Maximum Depth = 12 feet; Shoreline Length = 0.4 mile; Constructed = 1920's.

Peotone Sportsmen Club is located 0.5 mile north of Peotone. The club consists of two small ponds, 1.0 acre and 0.5 acre, and about 15 acres of land. The two ponds are abandoned clay pits and are too small to provide quality fishing on a natural basis. Fishing pressure is heavy so therefore, the club has entered into a put and ta fishery. Each year the club purchases one thousand dollars or more of catchable size largemouth bass, yellow perch, channel catfish, bullheads, bluegill, crappie and other game species to support the intensive fishing pressure on the two small club ponds.

Aquatic vegetation does present a problem, and annual treatment is required. The club also offers picnicking facilities. Access is limited to club members and guests.

Pine Lake; T34N, R13E, Section 16; Private; Surface Acres = 6.0; Maximum Depth = 13.0; Shoreline Length = 0.66 miles; Constructed = 1950's.

Pine Lake is located 2.0 miles south of Park Forest. The lake is presently owned by New Community Enterprizes. The owner wishes to develop the lake and then turn it over to Park Forest South - a new development. The primary use of the lake is fishing and swimming. Aquatic vegetation does present a problem and is treated on an annual basis. The fishing success is fair for bluegill, channel catfish and largemouth bass. Presently the lake has a stunted population of bluegill. Recommendations have been made to correct this problem but to date no action has taken place. The lake has a guard which cares for the lake 24 hours a day. Access is limited to small organizational groups.

Plainfield Fishing Resort; T36N, R9E, Section 14; Total Surface Acres = 135 (2 lakes); Fee.

Plainfield Fishing Resort is located 1.5 miles southeast of Plainfield. The resort features 2 lakes, the larger of the two being about 130 acres. Both lakes are abandoned gravel pits. Plainfield fishing resort is one of the nicest fee fishing areas in the county. The main attraction is trout, although channel catfish, bullheads, northern pike, walleye, crappie, bluegill, freshwater drum, largemouth bass, and rock bass are also available for catching. Access is by fee only.

Pure Rod and Gun Club; T36N, R9E, Section 10; Organization; Surface Acres = 70.0; Maximum Depth = 15 feet; Shoreline Length = 8.52 miles; Constructed = 1930's. Gravel Pit.

Pure Rod and Gun Club Lake is an abandoned gravel pit located one mile east of Plainfield. The lake has an irregular shoreline and is isolated from any creeks or streams. Aquatic vegetation does present a problem due to the clarity of the water. Curleyleaf pondweed, coontail, milfoil species, and filamentous algae, are located from the shoreline out to depths of 10 feet and more. The fish population consists of bluegill, largemouth bass, channel catfish, which are stocked yearly, northern pike, crappie, green sunfish, and numerous minnow species. The bluegill population is presently stunted and very plentiful. The club plans to initiate a management program to reduce the bluegill numbers and also start an aquatic weed control program. The primary use of the lake is fishing, hunting and swimming. Fishing pressure is moderate with fair success for channel catfish, bluegill and bass. Access is limited to club members and guests.

South Wilmington Sportsmen's Club; T32N, R9E, Section 33; Organization; Surface Acres = 43.2 (4 Lakes); Constructed = 1930's.

South Wilmington Sportsmen's Club lakes are strip mines located 4.0 miles southeast of Braidwood. The largest of the four lakes is 35 acres followed by Pike Lake which is 4 acres and two other smaller pits in the neighborhood of 2 acres each. As is the usual case with strip mines, these are deep, clear, and relatively infertile. Vegetation is present in the lakes and does represent some problem to fishing near shore. The primary use of the lakes are fishing and swimming. The fish population is typical of most strip mines consisting of largemouth bass, bluegill, northern pike, walleye, crappie, gizzard shad, suckers and numerous minnow species. In 1965 a selective rehabilitation was completed on the large lake for gizzard shad. The treatment reduced the shad population considerably. Access is limited to club members.

Wilmington Recreation Club; T33N, R9E, Section 32 and 33; Surface Acres = 65 acres (largest pit); Maximum Depth = 60 feet; Shoreline = 8.52 miles; Constructed = 1930's.

Wilmington Recreation Club lakes are abandoned strip mine lakes located 1.5 miles

WEST OF WILMINGTON. THE LARGEST LAKE, LAKE WILL, PRIMARY USE IS FOR BOATING, SWIMMING AND SKIING. THE SMALLER LAKE IS APPROXIMATELY 38 ACRES IN SIZE AND IS USED SOLELY FOR FISHING.

BOTH LAKES ARE TYPICAL STRIP MINE LAKES BEING LONG, NARROW, DEEP, CLEAR AND INFERTILE. FISHING PRESSURE IS MODERATE WITH GOOD SUCCESS FOR LARGEMOUTH BASS, BLUEGILLS, BULLHEADS AND CHANNEL CATFISH. OTHER SPECIES WHICH OCCUR INCLUDE: GIZZARD SHAD, GREEN SUNFISH, WHITE SUCKERS, CARP, WARMOUTH, CRAPPIE, WALLEYE, NORTHERN PIKE, GRASS PIKE, AND NUMEROUS MINNOW SPECIES.

THE SMALLER FISHING LAKE HAS A CONSIDERABLE AQUATIC VEGETATION PROBLEM. CHARA AND LEAFY PONDWEED ARE PRESENT FROM THE SHORELINE INTO 12 FEET OF WATER. UNFORTUNATELY, DUE TO THE RATHER LARGE COST OF TREATING SUCH A VOLUME OF WATER, NO WEED CONTROL HAS BEEN COMPLETED.

THE SHORELINES OF BOTH LAKES DO NOT LEND THEMSELVES TO EASY BANK FISHING, THEREFORE, ALMOST ALL FISHING IS DONE FROM BOATS.

THE SMALLER PIT ALSO HAS A POLLUTION PROBLEM, IN THAT IT RECEIVES RUNOFF FROM THE WILMINGTON CITY DUMP DURING PERIODS OF HEAVY RAINFALL AND HIGH WATER.

THE CLUB HAS A MEMBERSHIP OF 850 FAMILIES AND OWNS 490 ACRES OF LAND. CAMPING AND PICNICKING ARE ALSO FACILITIES OFFERED TO THE CLUB MEMBERS. ACCESS IS LIMITED TO CLUB MEMBERS AND GUESTS.

STREAMS

THE STREAMS DESCRIBED IN THIS INVENTORY ARE THOSE THAT HAVE A PERMANENT FLOW OR ANY STREAM OF INTERMITTENT FLOW WITH RECREATIONAL SIGNIFICANCE.

EACH STREAM IN THIS REPORT IS FIRST DESCRIBED BY NAME, THE LEGAL DESCRIPTION OF THE STREAM MOUTH OR POINT OF EXIT FROM THE COUNTY, APPROXIMATE SURFACE AREA (ACRES), TOTAL LENGTH IN COUNTY, AVERAGE WIDTH, GRADIENT (FEET PER MILE) AND TRIBUTARY RELATIONSHIP. AN ASTERISK BY GRADIENT INDICATES GRADIENT WITHIN THE COUNTY ONLY.

A BRIEF NARRATIVE PARAGRAPH IS WRITTEN CONCERNING EACH STREAM.

BLACK WALNUT CREEK; T33N, R12E, SECTION 36; SURFACE ACRES = 20.0; MILES = 11.0; AVERAGE WIDTH = 15.0 FEET; GRADIENT = 5.4 FEET PER MILE; TRIBUTARY TO: SOUTH BRANCH ROCK CREEK.

BLACK WALNUT CREEK IS A STRAIGHTENED AND DREDGED STREAM. THE STREAM ORIGINATES ABOUT ONE MILE SOUTH OF PARK FOREST SOUTH AND FLOWS SOUTHWEST TOWARD PEOTONE. FROM PEOTONE THE STREAM FLOWS SOUTHWARD ABOUT TWO MILES WHERE IT EXITS WILL COUNTY AND ENTERS KANKAKEE COUNTY. BOTTOM TYPE IS PRIMARILY SILT. THERE IS LIMITED ROOTED AQUATIC WEED GROWTH EXCEPT FOR SOME FILAMENTOUS ALGAE ALONG THE SHORELINE. THE STREAM HAS NO KNOWN SOURCE OF POLLUTION. LITTLE IS KNOWN OF THE FISH POPULATION, HOWEVER, DUE TO THE POOR HABITAT IN THE STREAM IT IS BELIEVED TO BE PRIMARILY MINNOWS AND SUCKERS AND VERY FEW OR NO GAME FISH. FISHING PRESSURE IS LIGHT AND PUBLIC ACCESS IS LIMITED TO COUNTY ROAD BRIDGES.

DES PLAINES RIVER; T34N, R9E, SECTION 31; SURFACE ACRES = 1,881.4; MILES = 25.5; AVERAGE WIDTH = 603.7; GRADIENT = 2.2 FEET PER MILE; TRIBUTARY TO: ILLINOIS RIVER.

THE DES PLAINES RIVER ENTERS WILL COUNTY ABOUT 2 MILES SOUTH OF BOLINGBROOK AND FLOWS SOUTH TO JOLIET. FROM HERE THE RIVER FLOWS SOUTHWEST TOWARD CHANNAHON. TWO MILES SOUTHWEST OF CHANNAHON THE RIVER LEAVES WILL COUNTY AND ENTERS GRUNDY COUNTY.

A few miles from the county line the Des Plaines meets the Kankakee River and together they form the headwater of the Illinois River. The entire drainage basin of the Des Plaines covers about 1,800 square miles of which much is imperfectly drained. The principal tributary of the Des Plaines in Will County, is the Du Page River which meets with the Des Plaines just west of Channahon. An almost geometric progression takes place in the pollution of the Des Plaines as it flows from north to south. Biological degradation of the low Des Plaines River is well documented; consequently little space will be devoted to the subject here. It will suffice to say that the deposition of organic and inorganic solids is to such an extent that at times the demand for oxygen exceeds the oxygen resources of the water which results in severe biological changes. Recovery of the stream does not take place until well downstate in the Illinois River. It is likely that fish from Lake Michigan find their way through the controlling structures and into the Des Plaines drainage via the regulated flow that is discharged from Lake Michigan to provide a flow to the Sanitary and Ship Canal. It is also likely that the migration of fish down through these waterways into the Des Plaines and Illinois rivers is seldom very significant due to the distances of water that are nearly devoid of oxygen. When such migrations do take place it is probably in the winter or spring when dissolved oxygen is present throughout the degraded zone. The capture of such species as the alewife and lake emerald shiner are possible indications of such successful migrations.

In 1967 a fishery survey was completed on the Des Plaines River and its tributaries. Seventeen sampling stations were surveyed between June 28 and July 11. A grand total of 2,634 fishes were collected. Of the total fish collected, 38 percent were game fish, 33 percent commercial fish, and 29 percent forage fish. It should be recognized here that the most abundant game species was green sunfish, while carp and goldfish were most abundant under commercial species.

Fishing pressure is moderate with access being available at boat marinas, road bridges, state and local government owned lands.

Du Page River; T34N, R9E, Section 20; Surface Acres = 540.9, Miles = 32.3; Average Width = 157 feet; Gradient = 3.7 feet per mile; Tributary to: Des Plaines River.

In this report both east and west branches of the Du Page will be considered along with the mainstream.

The East and West Branches of the Du Page come together about 2 miles west of Bolingbrook (Will County) and together with Spring Brook Creek form the mainstream of the Du Page River. From south of Naperville the river flows southward toward Plainfield and Shorewood. Just west of Channahon, about 3 miles above where the Kankakee and Des Plaines rivers form the Illinois River, the Du Page enters the Des Plaines. The Du Page drains a total of 377 square miles of which the northwest part of Will County is included (the East Branch of the Du Page River drains 91 square miles). The main function of the Du Page now would seem to be that of transporting sewage treatment plant effluents from the plants located on the river's watershed, particularly in Du Page County. One habitat feature which points up the organic enrichment of the stream is the presence of large quantities of filamentous algae throughout most of the river. At times, the algae bloom may shift to plankton algae which has caused fish kills in the past due to low dissolved oxygen in the water. Fish kills also have been suspected from a supersaturation of oxygen. The major species of fish known to occur in the river are green sunfish, carp, suckers, bullheads, goldfish, minnow species and some smallmouth bass. Relatively few species occur in the two branches of the river, but most all of the species mentioned above do occur downstream, below Shorewood. In Will County, fishing pressure is light, in that public access is limited mainly to road bridges, one county park (Hammel Woods) and one city park (Channahon Parkway).

Forked Creek; T33N, R9E, Section 25; Surface Acres = 42.2; Miles = 13.5; Average Width = 25.8 feet; Gradient = 2.5 feet per mile; Tributary to: Kankakee River.

Forked Creek is approximately 83 miles long and drains 111 square miles in Will and Kankakee counties. The creek originates as a drainage ditch about 3 miles southwest of Park Forest. From here it flows southwest toward Wilton Center. From Wilton Center it flows south into Kankakee County and then southwest again toward Ritchie. From here the stream flows northwest along State Route 102 toward Wilmington where it enters the Kankakee River in Will County. This stream has been straightened and dredge for almost half its length. The bottom types are predominantly silt and sand. Aquatic weed growth is limited to algae with a few submergent species of vegetation near its junction with the Kankakee River. Minnows and suckers make up the bulk of the fish population above Wilmington. Smallmouth bass enter the stream in late April and early May but are blocked from migrating any further than 600 yards into the stream by an old dam in Wilmington. Fishing pressure is heavy by the junction of the stream and the Kankakee River. The rest of the stream receives only light to moderate fishing pressure. Public access is limited to road bridges.

Grant Creek; T34N, R9E, Section 32; Surface Acres = 41.7; Miles = 4.0; Average Width = 36 feet; Gradient = 5.0 feet per mile; Tributary To: Des Plaines River.

Grant Creek lies entirely in Will County and drains 13 square miles of surrounding land. The stream originates a mile and a half south of Elwood and flows westerly until it enters the Des Plaines River 2.0 miles south of Channahon. Bottom types are primari sand and silt. Little is known concerning this stream; the stream has no known source of pollution. Minnows, suckers, redhorse, and other species which occur in the Des Plaines River make up the bulk of the fish population. Fishing pressure is light to nonexistent. Access is limited to one state area - the Des Plaines Conservation Area.

Hickory Creek; T35N, R10E, Section 21; Surface Acres = 110.8; Miles = 18.0; Average Width = 50.8 feet; Gradient = 9.7 feet per mile; Tributary to: Des Plaines River.

Hickory Creek originates in Cook County and flows westerly into Will County 3 miles east of Frankfort. Hickory Creek flows predominantly westward from this point and empties into the Des Plaines River at the south city limits of Joliet. The creek drains a total of 111 square miles. Bottom types are primarily sand and gravel. Aquatic vegetation includes water willows, sedges, smartweed, and elodea. Pollution has been a problem in some instances. Oil and domestic wastes enter from the New Lenox area and in 1964 a pollution caused fish kill was investigated downstream of Joliet. The cause was determined to be paper mill waste and involved some 3,700 fish. Fishing pressure is light to moderate, with access being limited to road bridges and one city park (Pilcher Park). Smallmouth bass, largemouth bass and rock bass are present in the Pilcher Park area on Hickory Creek thus providing interesting sport fishing. Other species present in the creek are minnow species, darter species, carp, suckers, green sunfish, and bullheads.

Illinois and Michigan Canal; T34N, R9E, Section 31; Surface Acres = 84.5; Miles = 21.2; Average Width = 35.0 feet; Tributary to: Illinois River.

The Illinois and Michigan Canal is an artificial stream. Its sole purpose for existing was to facilitate the transportation of barges between Lake Michigan and the Mississippi River. In 1836 the task of connecting Lake Michigan and the Mississippi River was accomplished by the state building the Illinois and Michigan Canal from the Chicago River westward to La Salle, at the head of navigation on the Illinois River. The work began in 1836 and was not completed until 1848. For nearly 100 years the canal was utilized by barges carrying goods and being towed by mule teams. After 1950 the

THE I&M CANAL WAS USED VERY LITTLE FOR NAVIGATION. SINCE THAT TIME THE CANAL HAS BEEN ABANDONED AND IS NOW INTERMITTENT AND SCARCELY DEFINABLE IN MANY AREAS.

THE I&M CANAL ORIGINATES IN COOK COUNTY AND FLOWS SOUTHWEST INTO WILL COUNTY ABOUT ONE AND A HALF MILES SOUTH OF BOLINGBROOK. FROM HERE THE CANAL GOES SOUTH TOWARD JOLIET AND THEN WEST TOWARD CHANNAHON WHERE IT FINALLY EXITS FROM THE COUNTY. THE CANAL'S BOTTOM IS PREDOMINATELY SILT AND RUBBLE WITH VERY LITTLE SAND AND GRAVEL MIXED IN. AQUATIC VEGETATION GROWTH IS LIMITED TO ISOLATED POCKETS OF COONTAIL, AMERICAN PONDWEED, CATTAILS AND A FEW OTHER AQUATIC SPECIES. ALGAE AND PLANKTON ALGAE ARE THE MOST NUMEROUS AQUATIC PLANTS PRESENT. ALMOST ALL STREAMS WHICH TRAVERSE THE CANAL ARE FUNNELED UNDER THE CANAL OR CARRIED OVER THE STREAM IN AQUEDUCTS. THE CANAL IS SUBJECT TO POLLUTION FROM INDUSTRIES AND HOMES WHICH BORDER THE CANAL AND FROM ITS FEEDER STREAMS WHICH CARRY SILT AND OTHER AGRICULTURAL POLLUTANTS. DUE TO THE LACK OF FLOW IN THE CANAL THIS POLLUTION CAN BUILD UP AND CAUSE FISH KILLS. GAME FISH TEND TO CONGREGATE IN AREAS WHERE THE CANAL RECEIVES ITS FEEDER STREAMS (CARSON CREEK, DU PAGE RIVER, ETC.). THE FISH POPULATION VARIES FROM ONE LOCATION TO ANOTHER, BUT THE PREDOMINATE SPECIES PRESENT ARE CARP, GOLDFISH, GREEN SUNFISH, SUCKERS, AND BLACK BULLHEADS. OTHER FISH OCCURRING ARE LARGEMOUTH BASS, BLUEGILL, CRAPPIE AND CHANNEL CATFISH. FISHING PRESSURE IS LIGHT TO MODERATE AT THE NUMEROUS LOCKS ON THE CANAL. ACCESS TO THE ANGLER IS LIMITED TO GEBHARD WOODS STATE PARK, CHANNAHON CITY PARKWAY PARK, ROAD BRIDGES AND THE OLD LOCKS.

ON JANUARY 1, 1974, JURISDICTION OVER THE CANAL AND RESPONSIBILITY FOR ITS MANAGEMENT WAS TRANSFERRED FROM THE DEPARTMENT OF TRANSPORTATION TO THE DEPARTMENT OF CONSERVATION AS PROVIDED BY HOUSE BILL 670 (PUBLIC ACT 78-718) SIGNED BY THE GOVERNOR ON SEPTEMBER 10, 1973.

THE EXISTING 61.6 MILES OF CANAL FROM JOLIET TO LA SALLE-PERU WILL BE DEVELOPED INTO A LINEAR PARKWAY. AN ESTIMATED 8.5 MILLION DOLLARS WILL BE SPENT OVER THE NEXT 10 YEARS TO DEVELOP CANOEING TRAILS BETWEEN LA SALLE-PERU AND UTICA AND BETWEEN CARSON CREEK AND JOLIET. THE TOWPATH WILL BE PARTLY CLEARED AND MAINTAINED AS A BICYCLING AND HIKING TRAIL. PICNICKING, CAMPING AND HISTORIC SITES WILL BE ADDITIONAL RECREATIONAL ACTIVITIES. EVEN A CANAL TOW-BARGE RIDE FROM CHANNAHON TO AUX SABLE WOULD BE AVAILABLE.

JACKSON CREEK; T34N, R9E, SECTION 14; SURFACE ACRES = 115.3; MILES = 16.8; AVERAGE WIDTH = 56.6; GRADIENT = 8.9 FEET PER MILE; TRIBUTARY TO: DES PLAINES RIVER.

JACKSON CREEK'S HEADWATERS ORIGINATE IN WILL COUNTY ABOUT ONE MILE SOUTHWEST OF FRANKFORT. THE STREAM FLOWS WESTWARDLY TOWARD CHANNAHON WHERE IT EMPTIES INTO THE DES PLAINES ABOUT 2 MILES EAST OF CHANNAHON. OUT OF THE 16.8 MILES OF STREAM IN THE COUNTY ABOUT ONE THIRD (6.75 MILES) HAS BEEN CHANNELIZED. THE STREAM DRAINS A TOTAL OF 55 SQUARE MILES. THE ONE MAIN TRIBUTARY TO THE STREAM IS JACKSON CREEK BRANCH. THIS BRANCH ORIGINATES JUST EAST OF NEW LENOX. APPROXIMATELY HALF OF THE BRANCH HAS BEEN CHANNELIZED. ABOUT ONE THIRD OF JACKSON CREEK'S ENTIRE LENGTH IS LOCATED ON THE JOLIET ARSENAL PROPERTY. AT ONE TIME THE STREAM RAN "RED" ALMOST CONTINUOUSLY AS A RESULT OF THE DISCHARGING OF EFFLUENT OBTAINED BY MANUFACTURING GUN POWDER. PRESENTLY, LITTLE POLLUTION IS KNOWN. CONSIDERABLE SPRING FLOODING DUE TO ICE JAMS IS KNOWN TO OCCUR. FISHING PRESSURE IS MODERATE AND SUCCESS IS FAIR TOWARD THE MOUTH OF THE STREAM. HOWEVER, FISHERMAN USAGE OF THE STREAM ON ARSENAL PROPERTY IS RESTRICTED TO THE OFFICERS ROD AND GUN CLUB AND CIVILIAN WORKERS OF THE ARSENAL. THE UPPER PORTIONS OF THE STREAM OFFER ACCESS ONLY AT ROAD BRIDGES.

A FAIRLY WIDE VARIETY OF SPECIES OF FISH ARE FOUND IN THE STREAM. GAME FISH SUCH AS SMALLMOUTH BASS AND ROCK BASS ARE PRESENT TOWARD THE STREAM'S MOUTH. GREEN SUNFISH, YELLOW BULLHEAD, SHINER SPECIES, AND MANY MINNOW SPECIES ARE PRESENT THROUGHOUT THE ENTIRE STREAM.

Kankakee River; T33N, R9E, Section 6; Surface Acres = 1,815.25; Miles = 19.0; Average Width = 788 feet; Gradient = 1.5 feet per mile; Tributary to: Illinois River.

This 130 mile long river (55 miles of which are in Illinois) enters Illinois from Indiana, approximately six miles east of Momence, in Kankakee County. From Momence the river flows southwest toward Aroma Park where it unites with one of its major tributaries, the Iroquois River. From the union of the Kankakee and Iroquois rivers, the Kankakee flows northwest through Kankakee County and into Will County about 8 miles southeast of Braidwood. Once in Will County the river flows northwest toward Wilmington. Two and a half miles south of Channahon the river exits Will County into Grundy County. Three miles further into Grundy County the Kankakee River together with the Des Plaines River converge to form the headwaters of the Illinois River. The entire drainage basin of the Kankakee River covers 5,280 square miles of which 2,218 square miles are in Illinois. Much of the mainstream's length in Indiana had been channelized up to the Illinois-Indiana state line. Historically, much of the basin of the Kankakee was at one time swamp land and marshy areas which afforded homes to vast populations of fish and game. Presently, however, almost all the lowland areas have been intensively drained for farmland, resulting in more rapid runoff of rainfall and in rapidly fluctuating water levels in periods of heavy rainfalls.

Between Momence and the Iroquois River mouth, the Kankakee falls 2 feet, while from this point to its junction at the headwaters of the Illinois River it falls 103 feet or an average of 3 feet per mile. Limestone outcroppings are notable features along certain stretches, such as the Kankakee River State Park. Ice jams occasionally cause periods of great water level fluctuation at certain points along the river. These occur almost every spring and may cause considerable local damage. The predominate bottom soil type of the Kankakee mainstream is sand, gravel and rubble. One of the outstanding features on the Kankakee is its extensive and productive rocky riffles and pool areas. A fishery survey was conducted on the Kankakee River and its tributaries in 1963 and revealed quite a variety of species. This survey indicated a relatively high abundance of channel catfish, rock bass, smallmouth bass, northern pike, and walleye. Other species which occur are quillback carpsuckers, carp, bullheads, northern redhorse, silver redhorse, golden redhorse, green sunfish, hog suckers, bigmouth and smallmouth buffalo, black and white crappie, gizzard shad, longnose gar, bluegill, the weed shiner, which is endemic to the Kankakee River drainage, and a variety of other minnows, darters, and sunfish. Even alewife and lake emerald shiners are found at the tailwaters of the Kankakee River in Grundy County. Presumably, these two species migrated to this point from Lake Michigan.

Fishing is the major stream use, although recreational boating is important in the six mile pool above the Kankakee dam. A low level dam also exists at Momence and Wilmington. Fishermen usage and access is particularly high in the area downstream from Momence all the way to the headwaters of the Illinois River. Many sections afford good access by roads running parallel and in close proximity to the river banks. At Kankakee River State Park a boat launch is available both in Will and Kankakee counties. The bi-county park also offers public access to almost six miles of mainstream. This stretch consists primarily of rocky riffles and is intensively used by fishermen. Wilmington City Park also offers a boat launch and some good fishing at the dam for the public. It must be emphasized that the entire mainstream of the Kankakee River in Illinois receives a high degree of usage by fishermen. The proximity of this stream to the highly populated metropolitan area lends greatly to its recreational importance.

Pollution does occur on the Kankakee River, but is mainly soil pollution. Endless tons of soil are carried into the Kankakee from its Indiana watershed

AND FROM THE IROQUOIS RIVER. SEVERAL POLLUTION CAUSED FISH KILLS HAVE BEEN INVESTIGATED ON SOME OF THE KANKAKEE'S TRIBUTARIES, BUT NONE HAVE EVER OCCURRED ON THE MAINSTREAM ITSELF.

LILY CACHE CREEK; T36N, R9E, SECTION 27; SURFACE ACRES = 59.5; MILES = 10.0; AVERAGE WIDTH = 49.1 FEET; GRADIENT = 6.0 FEET PER MILE.

THE HEADWATERS OF LILY CACHE CREEK ORIGINATE IN WILL COUNTY. THE STREAM ORIGINATES ONE-QUARTER MILE SOUTHWEST OF BOLINGBROOK AND FLOWS SOUTHWEST TOWARD PLAINFIELD. FROM PLAINFIELD THE STREAM FLOWS SOUTHWARD UNTIL ONE AND A HALF MILES SOUTHEAST OF PLAINFIELD WHERE LILY CACHE CREEK AND MINK CREEK CONVERGE AND FLOW TOGETHER ANOTHER 1.5 MILES BEFORE EMPTYING INTO THE DU PAGE RIVER. OF THE TEN MILES OF STREAM IN THE COUNTY MORE THAN HALF (5.7 MILES) HAVE BEEN CHANNELIZED. THE STREAM DRAINS A TOTAL OF 46.7 SQUARE MILES. LITTLE IS KNOWN CONCERNING THIS CREEK. ITS BOTTOM TYPES ARE PREDOMINATELY SILT WITH SOME SAND AND GRAVEL. DUE TO THE RATHER POOR HABITAT OFFERED BY THE STREAM, THE FISH POPULATION CONSIST MAINLY OF MINNOWS AND SUCKERS WITH AN OCCASIONAL SMALLMOUTH BASS AND POSSIBLY A ROCK BASS AT ITS MOUTH. PUBLIC ACCESS IS LIMITED TO GOVERNMENTAL ROAD BRIDGES.

LONG RUN; T35N, R10E, SECTION 11; SURFACE ACRES = 19.7; MILES = 9.3; AVERAGE WIDTH = 17.5 FEET; *GRADIENT = 7.5 FEET PER MILE; TRIBUTARY TO: ILLINOIS & MICHIGAN CANAL.

LONG RUN CREEK IS LOCATED IN THE NORTHERN PART OF WILL COUNTY WHERE IT DRAINS AN AREA OF 37 SQUARE MILES. THE HEADWATERS OF THE CREEK IS ACTUALLY A DRAINAGE DITCH WHICH ENTERS WILL COUNTY FROM COOK COUNTY ABOUT 5 MILES NORTHEAST OF LOCKPORT. ONCE IN WILL COUNTY THE CREEK FLOWS WESTWARD TOWARD ROMEOVILLE, AND FINALLY ENTERS THE ILLINOIS AND MICHIGAN CANAL ONE MILE NORTH OF LOCKPORT. THE BOTTOM TYPES ARE MAINLY SILT, SAND, AND GRAVEL IN THE MAINSTREAM AND MAINLY SILT IN THE DREDGED PORTIONS OF THE STREAM. THERE IS LITTLE GROWTH OF AQUATIC VEGETATION AND NO KNOWN SOURCE OF POLLUTION. LITTLE IS KNOWN ABOUT THE FISH POPULATION BUT IT IS BELIEVED THAT MINNOWS MAKE UP THE MAJORITY OF THE POPULATION WITH SOME SUCKERS SPECIES AND POSSIBLY SOME BLACK BULLHEAD AND GREEN SUNFISH. FISHING PRESSURE IS LIGHT WITH ACCESS RESTRICTED PRIMARILY TO ROAD BRIDGES.

PRAIRIE CREEK; T33N, R9E, SECTION 15; SURFACE ACRES = 52.1; MILES = 15.3; AVERAGE WIDTH = 28.1 FEET; GRADIENT = 14.7 FEET PER MILE; TRIBUTARY TO: KANKAKEE RIVER.

PRAIRIE CREEK IS LOCATED TOTALLY IN WILL COUNTY. THE HEADWATERS, WHICH IS PRIMARILY A DRAINAGE DITCH, ORIGINATES ABOUT 3 MILES SOUTH OF FRANKFORT. THE STREAM FLOWS SOUTHWEST WHERE IT EMPTIES INTO THE KANKAKEE RIVER TWO MILES NORTHWEST OF WILMINGTON. THE STREAM DRAINS A TOTAL OF 50 SQUARE MILES. OF THE 24.8 MILES IN WILL COUNTY BETTER THAN ONE THIRD HAS BEEN CHANNELIZED (15.3 MILES ACTUAL STREAM, 9.5 MILES DRAINAGE DITCH). APPROXIMATELY ONE HALF OF THE STREAM IS LOCATED ON THE UNITED STATES ARMY - JOLIET ARSENAL. WHEN THE ARSENAL WAS PRODUCING AT ITS MAXIMUM CAPACITY, THE STREAM WOULD RUN RED DUE TO BY-PRODUCTS RELEASED INTO THE STREAM BY THE ARSENAL. THE BOTTOM TYPES ARE PRIMARILY GRAVEL AND SAND IN THE LOWER AREA AND SILT AND SAND IN THE DREDGED PORTIONS. THERE IS LITTLE GROWTH OF AQUATIC VEGETATION AND THE ONLY SOURCE OF POLLUTION IS THE JOLIET ARSENAL AT TIMES OF HIGH PRODUCTIVITY. HOWEVER, NO FISH KILL HAS EVER BEEN REPORTED ON THIS STREAM. SMALLMOUTH BASS, ROCK BASS, NORTHERN PIKE, WALLEYE, REDHORSE, CARP AND QUILLBACK CARPSUCKERS ALL ENTER THE STREAM FROM THE KANKAKEE RIVER BEGINNING IN LATE MARCH. BUT DUE TO A NATURAL FALLS 50 YARDS FROM THE MOUTH OF THE STREAM, MIGRATION OF THESE FISH IS HALTED. ABOVE THE FALLS THE FISH POPULATION CONSIST MAINLY OF MINNOWS, SUCKERS AND POSSIBLY A FEW ROCK BASS AND SMALLMOUTH BASS THAT PEOPLE HAVE RELEASED ABOVE THE FALLS. FISHING PRESSURE IS QUITE HEAVY AT THE MOUTH OF THE STREAM, BUT ELSEWHERE FISHING PRESSURE IS LIGHT DUE TO LITTLE ACCESS.

Spring Creek; T35N, R10E, Section 11; Surface Acres = 20.6; Miles = 8.5; Average Width = 20.0 feet; Gradient 19.6 feet per mile; Tributary to: Hickory Creek.

Spring Creek is a very small stream that at times is almost intermittent. Its headwaters originate in Homer Township near the Will-Cook county line. The stream enters Hickory Creek in Joliet. Spring Creek drains a total of 18 square miles. Of the 8.5 miles in Will County, 1.5 miles have been channelized. Much of the lower stream's course is in rock and rubble while the upper stream bed is silty and sandy. There is little aquatic weed growth and pollution is suspected from a subdivision in the watershed. One fish kill did occur in 1961. A number of young-of-the-year largemouth bass, bluntnose minnows, stonerollers, creek chubs, and darters were collected. Fishing pressure is very light due to the small size of the stream. Access is available at Messenger Woods Forest Preserve and at road bridges.

Trim Creek; T33N, R14E, Section 32; Surface Acres = 10.1; Miles = 6.5; Average Width = 12.8 feet; *Gradient = 6.2 feet per mile; Tributary to: Kankakee River.

The total 6.5 miles of Trim Creek in Will County has been channelized. The headwaters of the creek originate about 2 miles northeast of Beecher (Will County). The stream then flows southward toward Kankakee County where it exits Will County 3 miles south of Beecher. The bottom type is mostly silt interspersed with some sand. There is little growth of aquatic vegetation and no known source of pollution. Due to the poor habitat offered by the creek, minnow species compose the majority of the fish population, game fish seldom if ever occur in the stream. Fishing pressure is very light with access restricted primarily to county road bridges.

SUMMARY OF INVENTORY DATA

THIS SECTION SUMMARIZES THE SURFACE WATER RESOURCES AVAILABLE IN WILL COUNTY. ALL WATER RESOURCES WITHIN THE COUNTY ARE INCLUDED, BUT THE EMPHASIS IS PLACED ON THOSE WITH PUBLIC ACCESS REGARDLESS OF THE TYPE OF WATER-BASED RECREATION PROVIDED. WATER QUALITY, LAKE MORPHOMETRY AND HOUSING DEVELOPMENTS WITH WATER FRONTAGE ARE ALSO DISCUSSED.

POPULATION AND AREA

THE FIRST PERMANENT WHITE SETTLERS ENTERED THE TERRITORY THAT IS NOW WILL COUNTY SHORTLY BEFORE 1830. JOLIET WAS LAID OUT IN 1834. THE COUNTY WAS ESTABLISHED BY LEGISLATIVE ACT IN JANUARY, 1836, BUT ITS PRESENT BOUNDARIES WERE NOT SET UNTIL 1853. THE BOUNDARIES ENCOMPASS 845 SQUARE MILES OR 540,800 ACRES. IN 1964 THERE WERE A TOTAL OF 1,912 FARMS IN WILL COUNTY ENCOMPASSING 395,140 ACRES OF LAND, OR 73% OF THE TOTAL COUNTY'S LAND AREA. THUS, AGRICULTURE IS THE PRIMARY USE OF THE LAND IN WILL COUNTY. ON THESE, THE PRIMARY AGRICULTURAL ACTIVITY IS CASH-GRAIN FARMING FOLLOWED BY LIVESTOCK. THE PRINCIPAL CASH-GRAIN CROPS ARE CORN AND SOYBEANS, WHILE THE TWO PRIMARY TYPES OF LIVESTOCK PROVIDING INCOME ARE CATTLE AND HOGS.

WHEN COMPARING THE POPULATION OF WILL COUNTY AND THE STATE OF ILLINOIS BETWEEN 1960 AND 1970, THE COUNTY HAD 30.2 PERCENT INCREASE IN RELATION TO A 10.2 PERCENT FOR THE STATE (TABLE 4). AS OF THE 1970 CENSUS, THE POPULATION OF THE COUNTY WAS SLIGHTLY OVER 294.6 PEOPLE PER SQUARE MILE (TABLE 4). JOLIET TOWNSHIP HAS THE GREATEST INDUSTRIAL DEVELOPMENT IN THE COUNTY AND CONSEQUENTLY SHOWS THE GREATEST POPULATION AND POPULATION INCREASE (TABLE 5). FROM 1940 TO 1970 JOLIET TOWNSHIP HAD A 34.3 PERCENT INCREASE IN POPULATION. THE OTHER TOWNSHIPS WHICH ARE MORE FARMING ORIENTED SHOWED A LOWER POPULATION INCREASE. THE URBAN POPULATION OF WILL COUNTY INCREASED BY 98.7 PERCENT FROM 1950 TO 1970, WHILE THE RURAL POPULATION INCREASED 36.2 PERCENT FROM 1950 TO 1970 (TABLE 6), INDICATING A TREND AWAY FROM THE FARMING ORIENTED COUNTY.

TABLE 6

RURAL VS URBAN POPULATION GROWTH 1950-1970 IN WILL COUNTY

	1950	1960	1970	% INCREASE FROM 1950-1970
RURAL	43,870	56,052	69,735	36.2
URBAN	90,451	135,565	179,763	98.7

FIGURES FROM U. S. CENSUS OF POPULATION 1950-1970.

THE POPULATION OF WILL COUNTY IS EXPECTED TO INCREASE TO 325,500 BY 1980. (POPULATION PROJECTIONS: DEPT. OF BUSINESS AND ECONOMICS DEVELOPMENT, STATE OF ILLINOIS).

THERE IS A TOTAL OF 34,290 ACRES OF GOVERNMENTAL OWNED LAND IN WILL COUNTY; OF THIS 2,133 ACRES ARE OWNED BY THE COUNTY, 3,157 ACRES BY THE STATE AND 29,000 BY THE FEDERAL GOVERNMENT. THERE ARE TWO STATE OPERATED FACILITIES IN WILL COUNTY AVAILABLE TO THE PUBLIC. THEY ARE THE DES PLAINES CONSERVATION AREA AND A PORTION OF THE KANKAKEE RIVER STATE PARK. THE DES PLAINES CONSERVATION AREA OFFERS PUT AND TAKE PHEASANT HUNTING IN THE FALL OF THE YEAR. FISHING IS AVAILABLE ON LAKE MILLIKEN A 22.0 ACRE STATE LAKE AND ALONG PORTIONS OF THE KANKAKEE RIVER AND THE KANKAKEE RIVER BACKWATERS. SOME PICNICKING IS ALLOWED ALONG THE LAKE AND RIVER. THE PORTION OF THE

TABLE 4

POPULATION AND LAND AREA COMPARISON OF WILL COUNTY TO THE STATE OF ILLINOIS

County and State	Area Square Miles	1940	1950	1960	1970	% Change 1940-1970	Population Per Squqre Mile 1970 Census
Will	845	114,210	134,336	191,617	249,498	118	294.6
Illinois	56,400	7,897,241	8,712,176	10,081,158	11,113,976	40.7	199.4

Source: Bureau of Census Statistics and U. S. Census of Population 1970.

TABLE 5

POPULATION AND PERCENT CHANGE BETWEEN 1940-1970 FOR TOWNSHIPS IN WILL COUNTY

WILL COUNTY		POPULATION				%-CHANGE
TOWNSHIP	MAJOR CITY	1940	1950	1960	1970	1940-1970
CHANNAHON	CHANNAHON	845	1,193	2,125	2,712	84.5
CRETE	CRETE	4,210	6,380	11,737	15,270	262.7
CUSTER	CUSTER PARK	548	611	651	949	73.1
DU PAGE	BOLINGBROOK	864	1,055	4,725	20,037	2,219.0
FLORENCE	SYMERTON	652	615	629	671	2.9
FRANKFORT	FRANKFORT	2,309	3,311	5,784	9,633	317.1
GREEN GARDEN	---------	641	642	678	791	23.4
HOMER	LOCKPORT (PART)	955	1,459	4,078	6,686	547.3
JACKSON	ELWOOD	958	1,173	1,461	1,755	83.1
JOLIET	*JOLIET (PART)	71,466	76,696	94,116	96,001	34.3
LOCKPORT	LOCKPORT (PART)	12,712	17,468	26,882	33,354	162.3
MANHATTAN	MANHATTAN	1,214	1,298	1,823	2,374	95.5
MONEE	PARK FOREST SO.	1,136	1,737	5,131	7,240	537.3
NEW LENOX	NEW LENOX	2,104	3,356	6,232	10,049	377.6
PEOTONE	PEOTONE (PART)	1,732	1,982	2,392	2,914	68.2
PLAINFIELD	PLAINFIELD	2,550	3,519	6,655	11,028	332.4
REED	BRAIDWOOD	1,590	1,803	2,192	2,646	66.4
TROY	SHOREWOOD	945	1,065	2,679	11,568	1,124.1
WASHINGTON	BEECHER	1,663	1,871	2,347	2,940	76.7
WESLEY	RITCHIE	596	825	1,741	2,331	291.1
WHEATLAND	NORMANTOWN	739	821	1,023	1,794	142.7
WILL	PEOTONE (PART)	658	592	774	750	13.9
WILMINGTON	WILMINGTON	2,514	4,306	5,132	5,296	110.6
WILTON	WILTON CENTER	609	558	630	709	16.4

*COUNTY SEAT
SOURCE: U. S. CENSUS OF POPULATION 1940-1970.

Kankakee River State Park in Will County offers a boat launch off of Illinois Route 102. Joliet Park District - Pilcher Park has a 0.7 acre pond which offers limited fishing and picnicking. There are a total of eight private areas open to the public. These fee fishing areas are: Rock Lake just south of Romeoville, Rock Lake North just south of Romeoville, Calumet Dixie Enterprises 2.5 miles south of Crete, Christmas Tree Lake 7 miles east and ½ mile south of Lockport, Dan and Hazel's Trout Ponds 10 miles north of Plainfield, Hidden Lakes 2.5 miles south of Wilmington, Plainfield Fishing Resort Area 2.5 miles northeast of Plainfield and Stuarts Lake 1 mile west of Peotone.

Water Resources

In Will County there are 93 lakes (6 acres or larger) and 865 ponds (less than 6 acres), for a total of 958 impoundments with a surface area of 3,909.91 acres. More than half of the water areas are less than one acre in size, while only 9.7 percent are six acres or larger. There is one state-owned lake in Will County, Lake Milliken, located on the Des Plaines Conservation Area north of Wilmington. The lake is relatively small, only 22 acres and rather shallow, thus subject to periodic winter kill.

There are 15 streams in the county with a total surface area of 4,814.05 acres (Table 7). These streams total 210.9 miles in length throughout Will County. Of these 15 streams, 4 are less than 20 feet wide. The most important streams for recreation are the Kankakee River, Prairie Creek, and Forked Creek.

Combining the impoundments and streams, there is a total surface water acreage of 8,723.96 acres or 1.61 percent of the total surface area of the county.

The rate of development of lakes and ponds within the county is relatively stable despite the tremendous need for water recreation areas. On the average, over the past 10 years, 19 ponds a year have been built. This high average is mainly due to the fact that 92 ponds were built in 1967. If this year is not included in the average, a new average of 10 ponds per year is closer to the actual number being constructed each year.

Channelization

"A river is more than an amity----it is a treasure." These words were spoken by Supreme Court Justice, Oliver Wendel Holmes years ago. Did he speak to unhearing ears?

In the State of Illinois there are 8,129.94 miles of channelized waterways (Appendix 6). This figure is broken down into 3,123.6 miles of channelized natural streams, and 5,006.34 miles of man-made ditches and canals for drainage purposes (not including the Hennepin Canal). This does not take into account those portions of the Illinois and Mississippi rivers which have been channelized.

Channelization turns a meandering stream into a ditch. The practice usually includes straightening the natural meanders, clearing the banks and widening and deepening the channel. In some instances the spoil taken from the stream is spread along the sides of the channel, or used to construct dikes and levees. These changes have far reaching and ecological effects, some of which may be disasterous. The effec of channelization will vary from watershed to watershed, depending on the quantity and quality of the natural resources in the local area and on the objections and extent of the individual project. There are three principle purposes for channelizing a stream, they are: navigation, flood control, and to increase arable land. There

TABLE 3

PHYSICAL AND CHEMICAL CHARACTERISTICS OF WILL COUNTY NAMED STREAMS

Stream Name	Surface Water Acres	Approx. Drainage (Sq. Mile)	Total Length (Miles)	Average Width (Ft.)	Predominant Bottom Type	pH	Pollution	Fishing Pressure	F/S Flow
Black Walnut Creek	20.00	15.00	11.00	15.00	Gravel	8.4	Moderate	Light	0.1
Des Plaines River	1,881.40	1,800.00	25.50	608.70	Silt	7.5	Heavy	Light	0.3
Du Page River	504.30	377.00	26.50	157.00	Gravel-rubble	8.1	Moderate	Moderate	1.5
E. Branch Du Page River	36.60	91.00	5.80	52.00	Sludge	7.6	Moderate	Moderate	0.5
Forked Creek	42.20	111.00	13.50	25.80	Sand	8.4	Moderate	Moderate	0.5
Grant Creek	41.70	13.00	4.00	86.00	Silt	---	Moderate	Light	---
Hickory Creek	110.80	111.00	18.00	50.80	Rubble	8.1	Moderate	Heavy	1.0
Ill. & Michigan Canal	84.50	------	21.20	32.90	Silt	8.2	Moderate	Light	0.3
Jackson Creek	115.30	55.00	16.80	56.60	Rubble	N.D.	N.D.	Moderate	0.7
Kankakee River	1,815.25	*2,218.00	19.00	788.20	Sand-Gravel	8.4	Moderate	Heavy	1.0
Lily Cache Creek	59.50	46.70	10.00	49.10	N. D.	N.D.	N.D.	N.D.	N.D.
Long Run Creek	19.70	37.00	9.30	17.50	N.D.	N.D.	N.D.	N.D.	N.D.
Prairie Creek	52.10	50.00	15.30	28.10	Sand-Gravel	8.2	Moderate	Light	0.8
Spring Creek	20.60	18.00	8.50	20.00	Silt	8.1	Moderate	Light	0.8
Trim Creek	10.10	66.00	6.50	12.80	------	---	--------	-----	---
Total	4,814.05		210.90						

*Total drainage area in Illinois.
N.D. = No Data.

TABLE 7

SUMMARY OF WATER INVENTORY FOR WILL COUNTY AS OF JANUARY 1, 1974

IMPOUNDMENTS

SIZE CATEGORIES (ACRES)	ARTIFICIAL		NATURAL	
	NUMBER	TOTAL ACREAGE	NUMBER	TOTAL ACREAGE
0.1 TO 0.4	192	48.36	70	20.10
0.5 TO 0.9	240	147.70	59	37.90
1.0 TO 5.9	219	447.35	103	256.50
6.0 TO 10.9	14	111.30	24	192.70
11.0 TO 40.9	20	448.40	24	581.70
41.0 TO 100.9	5	341.00	4	246.80
101.0 TO 500.9	1	184.00	--	------
501 PLUS	1	865.00	--	------
TOTAL	692	2,593.11	284	1,335.70

STREAMS

WIDTH CATEGORIES (FEET)	NUMBER	TOTAL LENGTH IN COUN (MILES)
NOT OVER 20 FEET	4	35.30
21 TO 100 FEET	8	104.60
101 TO 300 FEET	1	26.50
301 FEET PLUS	2	44.50
TOTAL	15	210.90

TOTAL WATER ACREAGE FOR WILL COUNTY: 8,742.86 ACRES

ARE ENCOURAGING INDICATIONS THAT STREAM DEGRADATION IS SLOWING TO A HALT AS PUBLIC AGENCIES REACT TO A GROWING AWARENESS OF THE IMPORTANCE OF THE RETURNING NATURAL ENVIRONMENT. INSPIRED AND PRODDED BY THE NECESSITY OF COMPLYING WITH FEDERAL ENVIRONMENTAL PROTECTION ACT, THESE AGENCIES DEALING WITH CHANNELIZATION ARE BEGINNING TO TAKE A SECOND LOOK - SOME MORE THAN OTHERS - AND THE FUTURE TREATMENT AND USE OF OUR RIVERS AND STREAMS APPEAR BRIGHTER.

ONLY FOUR OF ILLINOIS' 102 COUNTIES HAVE NONE OR LESS THAN ONE MILE OF CHANNELIZATION. WILL COUNTY RATES NUMBER 11 IN ILLINOIS' COUNTIES HAVING THE MOST CHANNELIZATION. WILL COUNTY HAS A TOTAL OF 190.2 MILES OF CHANNELIZED STREAMS AND DITCHES (TABLE 8).

LAKE MORPHOMETRY AND ORIGIN

IN WILL COUNTY APPROXIMATELY ONE THIRD OF THE IMPOUNDMENTS ARE NATURAL AND THE REST ARTIFICIAL. THE NATURAL WATERS IN THE COUNTY ARE OF THREE TYPES: OXBOWS ALONG LARGER STREAMS, RIVER BACKWATER LAKES AND WATER FILLED DEPRESSIONS IN POORLY DRAINED SOILS. MOST OF THE OXBOWS ARE FOUND ALONG THE KANKAKEE, DU PAGE AND DES PLAINES RIVERS. SIZE AND DEPTH OF THESE LAKES VARY CONSIDERABLY FROM YEAR TO YEAR DEPENDING ON THE YEARLY RAINFALL.

THERE ARE FIVE TYPES OF ARTIFICIAL IMPOUNDMENTS IN THE COUNTY, THE GRAVEL PIT, THE BORROW PIT, THE STRIP MINE, THE STONE QUARRY AND THE WATERSHED LAKES. GRAVEL PIT LAKES RESULT WHEN GRAVEL DEPOSITS ARE EXCAVATED. BORROW PIT LAKES ARE FORMED WHEN SOIL IS EXCAVATED. STRIP MINE LAKES ARE FORMED WHEN COAL IS EXCAVATED. STONE QUARRY LAKES WERE FORMED WHEN SHALE WAS EXCAVATED. WATERSHED LAKES ARE FORMED BY PLACING A DAM ACROSS A NATURAL DRAINAGE COURSE AND IS FILLED BY RUN-OFF WATER. THE LATTER IMPOUNDMENT ALONG WITH STRIP MINES ARE THE MAIN TYPES FOUND IN THE COUNTY. MOST OF THE WATERSHED LAKES AND PONDS ARE LOCATED WHERE BOTH TOPOGRAPHY AND SOIL TYPE ARE SUITABLE FOR CONSTRUCTION. AREAS OF ROCKY OUTCROPPING, SAND, GRAVEL AND LIMESTONE ARE AVOIDED.

WATER QUALITY

THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY AND ITS PREDESSOR, THE STATE SANITARY WATER BOARD OF THE DEPARTMENT OF PUBLIC HEALTH, HAVE CARRIED OUT A PROGRAM OF REGULAR SAMPLING OF THE STREAMS AND LAKES OF ILLINOIS SINCE 1958. THEREFORE, A GREAT AMOUNT OF DATA IS AVAILABLE ON THE WATER QUALITY OF WILL COUNTY, APPENDIX 5 PROVIDES WATER QUALITY DATA ON SOME OF THE MAJOR STREAMS WITHIN WILL COUNTY.

IN GENERAL, THE SURFACE WATERS OF WILL COUNTY CAN BE CLASSIFIED AS HIGHLY FERTILE, RELATIVELY HARD AND VERY PRODUCTIVE (APPENDIXES 7 & 8). MOYLE (1949) STATED THAT SURFACE WATERS WITH A TOTAL METHYL ORANGE ALKALINITY READING OF ABOVE 90 PPM ARE VERY HIGH IN FISH AND PLANT PRODUCTIVITY. SAMPLES ON STREAMS IN WILL COUNTY RANGE FROM 148 TO 344 PPM; AND IN IMPOUNDMENTS FROM 94 TO 171 PPM (TOTAL ALKALINITY OF ILLINOIS WATERS, 1971).

MEASUREMENTS OF THE HYDROGEN-ION CONCENTRATION (pH) FOR THE STREAM VARIES FROM 7.3 TO 8.4 (APPENDIX 5). THESE READINGS ARE WITHIN THE OPTIMUM RANGE FOR FISH (5.0 -9.6).

BACTERIA COUNTS FOR SOME OF THE STREAMS ARE HIGH, INDICATING THE PRESENCE OF ORGANIC POLLUTION (APPENDIX 5).

MOST OF THE DEEPER LAKES AND PONDS IN THE COUNTY ARE THERMALLY STRATIFIED DURING THE SUMMER AND WINTER MONTHS AS A RESULT OF VARIANCE IN WATER DENSITY AT DIFFERENT WATER TEMPERATURES, LAYERING (STRATIFICATION) OF THE WATER OCCURS. DURING A PERIOD OF STRATIFICATION, THERE IS LITTLE OR NO OXYGEN IN THE DEEPER PORTIONS OF THE LAKES

TABLE 8

SUMMARY OF CHANNELIZED STREAMS AND DRAINAGE DITCHES FOR WILL COUNTY AS OF JANUARY 1, 1969

Named Streams	Total Length Channelized (Miles)
Jordan Creek	1.00
Grant Creek	3.20
Cache Creek	5.70
Sugar Run	1.20
Spring Creek	1.40
Jackson Creek	6.75
Prairie Creek	6.00
South Branch Forked Creek	7.25
Forked Creek	5.60
Rock Creek	6.00
Black Walnut Creek	11.40
Exline Slough	4.00
Trim Creek	13.00
Pike Creek	3.00
Rayns Creek	1.40
Cedar Creek	1.10
Deer Creek	2.50
Illinois & Michigan Canal	21.20
Chicago Sanitary and Ship Canal	8.90

Unnamed Streams - Total Channelized: 8.90 miles
Drainage Ditches - Total: 70.70 miles
Grand Total of Channelized Waters in Will County: 190.20 miles

AND PONDS. COMPLETE MIXING OCCURS ONLY DURING SPRING AND FALL TURNOVER WHEN WATER TEMPERATURES ARE THE SAME THROUGHOUT THE LAKE (4°C).

FISHERIES

A STATE-WIDE SURVEY OF ILLINOIS ANGLERS SHOWED THAT THE CATFISHES WERE THE MOST PREFERRED FISH, FOLLOWED BY LARGEMOUTH BASS, CRAPPIE AND BLUEGILL (LOPINOT, 1967). THIS SAME SURVEY REVEALED THAT WILL COUNTY ANGLERS PREFERRED TO CATCH LARGEMOUTH BASS FOLLOWED BY SMALLMOUTH BASS AND CHANNEL CATFISH, NORTHERN PIKE, BLUEGILL AND CRAPPIE. THOSE FISH MOST FREQUENTLY CAUGHT BY THE WILL COUNTY ANGLER WERE CHANNEL CATFISH FOLLOWED BY BLUEGILL, CRAPPIE, LARGEMOUTH BASS, SMALLMOUTH BASS, CARP, SUNFISH, STRIPED BASS, PIKE (NORTHERN & WALLEYE) AND DRUM (LOPINOT, 1967). CARP CARPSUCKERS AND CHANNEL CATFISH ARE THE MOST ABUNDANT SPECIES. MOST OF THE PONDS AND LAKES ARE STOCKED WITH A LARGEMOUTH BASS-BLUEGILL COMBINATION; SOME ARE ALSO STOCKED WITH REDEAR SUNFISH AND CHANNEL CATFISH. MOST OF THE STREAMS CONTAIN NATURAL POPULATIONS OF SMALLMOUTH BASS AND/OR CHANNEL CATFISH, AS THE PRIMARY SPORT FISH AVAILABLE. THE KANKAKEE RIVER ALSO HAS A NATIVE POPULATION OF NORTHERN PIKE, STRIPED BASS AND WALLEYE.

COMMERCIAL FISHING DOES NOT OCCUR IN ANY OF THE WATERS IN WILL COUNTY. THE KANKAKEE RIVER IS CLASSIFIED AS A FISH PRESERVE THUS PROHIBITING COMMERCIAL FISHING AND THE DES PLAINES AND DU PAGE RIVERS DO NOT OFFER MUCH OF AN INDUCEMENT TO PROSPECT COMMERCIAL FISHERMEN.

THE MOST IMPORTANT SPORT FISHES IN THE COUNTY INCLUDE THE LARGEMOUTH BASS, SMALLMOUTH BASS, WALLEYE, NORTHERN PIKE, CHANNEL CATFISH, BLUEGILL, CRAPPIE AND STRIPED BASS. ONE SPECIES WITH SPORADIC DISTRIBUTION IN WILL COUNTY IS THE GRASS PICKEREL WHICH OCCURS IN THE KANKAKEE RIVER AND ITS TRIBUTARIES.

WETLANDS

VERY TRUE WETLANDS (MARSH AREAS) EXIST IN WILL COUNTY. MOST OF THESE LANDS HAVE BEEN TILED AND DRAINED. AT ONE TIME MUCH OF THE AREA SURROUNDING THE KANKAKEE, DES PLAINES AND DU PAGE RIVERS WAS CONSIDERED MARSH LAND. NOW, LEVEES PROTECT SOME OF THE LAND AND CHANNELIZATION OF THE RIVERS HAS HELPED TO REDUCE THE EXPOSING OF LAND TO INUNDATION BY THE DES PLAINES AND DU PAGE RIVERS.

PUBLIC USE AND ACCESS

THE ONLY WATER IMPOUNDMENTS AVAILABLE FOR FREE PUBLIC USE ARE THE PUBLIC AND STATE OWNED LAKES IN WILL COUNTY. THESE ARE GRANT CREEK CUTOFF AND LAKE MILLIKEN (IN THE DES PLAINES CONSERVATION AREA). JOLIET PARK DISTRICT - PILCHER PARK AND PLAINFIELD CITY LAKE (BOY SCOUT POND). THE DES PLAINES CONSERVATION AREA ALSO HAS LAND ALONG SOME OF THE BACKWATER AREAS OF THE KANKAKEE RIVER. KANKAKEE RIVER STATE PARK AND THE DES PLAINES CONSERVATION AREA ARE STATE OWNED LANDS THAT OFFER SOME PUBLIC ACCESS TO PORTIONS OF THE KANKAKEE RIVER.

MOST OF THE STREAMS OF THE COUNTY FLOW THROUGH PRIVATE LAND; THEREFORE, PUBLIC ACCESS IS ONLY AT ROAD BRIDGES OR RIGHT-OF-WAYS. TABLE 9 LISTS THE PUBLIC AREAS WITH WATER FRONTAGE. THESE FOUR AREAS CONSTITUTE ONLY 10 PERCENT OF THE TOTAL WATER AREAS OF THE COUNTY. PUBLIC LAUNCHING IS AVAILABLE ONLY AT THE KANKAKEE RIVER STATE PARK OFF OF ILLINOIS ROUTE 102 AND AT THE WILMINGTON CITY PARK IN WILMINGTON. THERE ARE SEVERAL PRIVATE LAUNCHING AREAS ALONG THE DES PLAINES AND KANKAKEE RIVERS.

TABLE 9

PUBLIC PARKS AND CONSERVATION AREAS WITH WATER FRONTAGE IN WILL COUNTY

Name of Park	Ownership	Legal	Water Area (Acres)	Water Frontage (Miles)	Water Name
Des Plaines Conservation Area	State	A) T33N,R9E,S. 15&22 B) T33N,R9E,S. 8,9&22 C) T33N,R9E,S. 15 D) T33N,R9E,S. 5	A) 22.0 B) 339* C) 0.3 D) 68.3	A) 1.0* B) 4.0 C) 0.1 D) 1.6	A) Lake Milliken B) Kankakee River C) Prairie Creek D) Grant Creek Cut Off
Kankakee River State Park	State	T32N,R10E,S.21,22, 26,27,28&36	424*	5.0*	Kankakee River
Channahon City Parkway Park	Channahon Park District	T34N,R9E,S. 31	---	1.0	Illinois & Michigan Canal
Joliet Park District-Pilcher Park	Joliet Park District	T35N,R11E, S. 7&8	0.7	0.2	Pilcher Park Pond
McKinley Forest Preserve	State	T34N,R9E,S. 29	---	0.9 1.0	Illinois Michigan Canal & Des Plaines River
Plainfield City Lake	City of Plainfield	T36N,R9E,S. 15	1.2	0.3	Boy Scout Pond
Wilmington Island Park	Wilmington	T33N,R9E,S. 35	275*	1.0*	Kankakee River

*Immediate shoreline and mainstream bordering that shoreline.

Cottage and Homesite Development

There are numerous cottages and homesite developments along the Kankakee, Des Plaines and Du Page rivers in Will County. Lake subdivisions have become very popular in Will County. Several subdivisions have been intensively developed around old strip mine lakes. The land surrounding these strip mine lakes has skyrocketed from several hundred dollars an acre to as high as 10,000 dollars a half acre. The total number of cottage developments and subdivisions along the Kankakee, Des Plaines, and Du Page rivers, as well as other strip mine lakes, can be expected to increase.

PRESENT AND POTENTIAL USES OF SURFACE WATER

THE POPULATION OF ILLINOIS, INCLUDING WILL COUNTY, HAS INCREASED AND WILL CONTINUE TO GROW. BECAUSE OF THIS GROWTH AND THE TREND TOWARD MORE LEISURE TIME, THERE IS AN EVER INCREASING NEED FOR MORE WATER-BASED RECREATION. THIS SECTION DISCUSSES THE PRESENT AND POTENTIAL NEEDS IN THE COUNTY FOR THE FOLLOWING TYPES OF WATER RELATED USES: FISHING, BOATING, SWIMMING, CAMPING, HUNTING AND TRAPPING AND AESTHETICS.

FISHING (SPORT AND COMMERCIAL)

SPORT FISHING HAS ALWAYS BEEN ONE OF THE STATE'S MOST POPULAR FORMS OF OUTDOOR RECREATION. FIGURE 12 IS A GRAPHIC REPRESENTATION OF DATA LISTED IN APPENDIX 2. BOTH SHOW THE COMPARISON BETWEEN RESIDENT SPORT FISHING LICENSE SALES FOR WILL COUNTY AND THE STATE OF ILLINOIS FROM 1948 TO 1971. STATE-WIDE SALES REACHED A PEAK IN 1955. A GENERAL DOWNWARD TREND FOLLOWED UNTIL 1965 WHEN SALES GRADUALLY BEGAN TO INCREASE. SINCE THAT TIME SALES HAVE GRADUALLY INCREASE EVERY YEAR. FACTORS CREATING THIS SLUMP IN SALES ARE DUE TO INCREASED URBANIZATION ACCOMPANIED BY REDUCED ACCESS TO FISHING WATERS, RECREATIONAL WATER USE CONFLICTS, AND POOR WATER QUALITY FOR FISH HABITAT (ILLINOIS DEPARTMENT OF BUSINESS AND ECONOMIC DEVELOPMENT, 1965). COUNTY-WIDE SPORT FISHING LICENSE SALES PARALLEL THE STATE-WIDE TRENDS. BASED ON FISHING LICENSE SALES FOR THE COUNTY, ONE OUT OF FIFTEEN PERSONS IS LICENSED.

PRESENT FISHERIES IN THE COUNTY INCLUDE GOOD LARGEMOUTH BASS AND BLUEGILL FISHING IN SEVERAL OF THE MAN-MADE LAKES AND PONDS. TRIBUTARY STREAMS TO THE KANKAKEE RIVER AND THE KANKAKEE ITSELF IN WILL COUNTY PROVIDE SOME OF THE FINEST SMALLMOUTH BASS, CHANNEL CATFISH, WALLEYE, AND NORTHERN PIKE FISHING IN THE STATE.. WALLEYE AND NORTHERN PIKE FISHING IS SEASONALLY GOOD IN THE TRIBUTARIES OF THE KANKAKEE RIVER. GAME FISH POPULATIONS IN THE STREAMS AND RIVERS COULD BE STRENGTHENED THROUGH POLLUTION CONTROL.

NO COMMERCIAL FISHING IS DONE IN WILL COUNTY. THE KANKAKEE RIVER IS CLASSIFIED AS A FISH PRESERVE THUS MAKING COMMERCIAL FISHING IN THIS RIVER ILLEGAL. THE DU PAGE AND DES PLAINES ARE ALSO CLASSIFIED AS STATE FISH PRESERVES.

FIGURE 13 SHOWS FIVE POTENTIAL SURFACE RESERVOIR SITES FOR WILL COUNTY THAT COULD BE DEVELOPED (DAWES AND TERSTRIP, 1967). THIS NUMBER IS LOW WHEN COMPARED TO THE NEED FOR AREAS OF THIS TYPE.

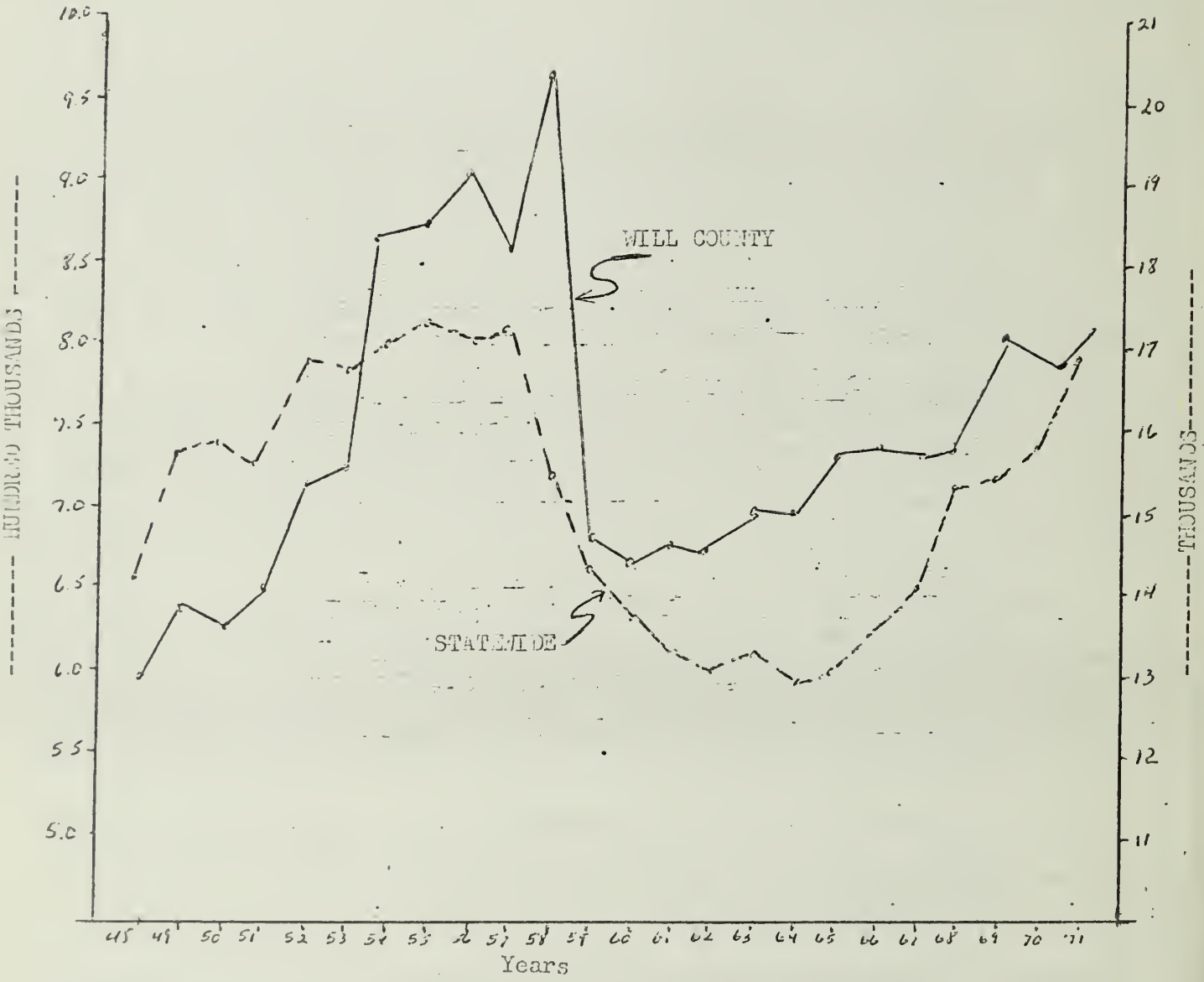
FISHING WILL ALWAYS BE AN IMPORTANT OUTDOOR ACTIVITY IN THE COUNTY BECAUSE OF ITS APPEAL TO PEOPLE OF ALL AGES AND BECAUSE IT GOES HAND IN HAND WITH OTHER TYPES OF OUTDOOR RECREATION.

BOATING

BOATING, AS A MAJOR WATER-BASED ACTIVITY, INCREASED PHENOMENALLY IN THE 1960'S. RESIDENT BOAT REGISTRATIONS FOR ILLINOIS SHOW THIS SAME INCREASE, WHILE WILL COUNTY EXEMPLIFIED A MUCH LOWER RATE OF INCREASE.

THERE IS AMPLE ACCESS TO SUITABLE BOATING WATERS FROM PRIVATE MARINAS ALONG THE DES PLAINES AND KANKAKEE RIVERS AND FREE PUBLIC ACCESS IS AVAILABLE TO THE KANKAKEE RIVER AT THE WILMINGTON ISLAND PARK IN WILMINGTON AND AT THE PORTION OF KANKAKEE RIVER STATE PARK OFF ILLINOIS ROUTE 102. THE DES PLAINES RIVER IS THE ONLY SURFACE WATER IN THE COUNTY SUITABLE FOR PLEASURE BOATING, WHILE THE KANKAKEE RIVER IS RATHER SHALLOW AND SWIFT. CANOEING IS AVAILABLE ON THE DU PAGE, DES PLAINES AND PORTIONS OF THE KANKAKEE RIVERS.

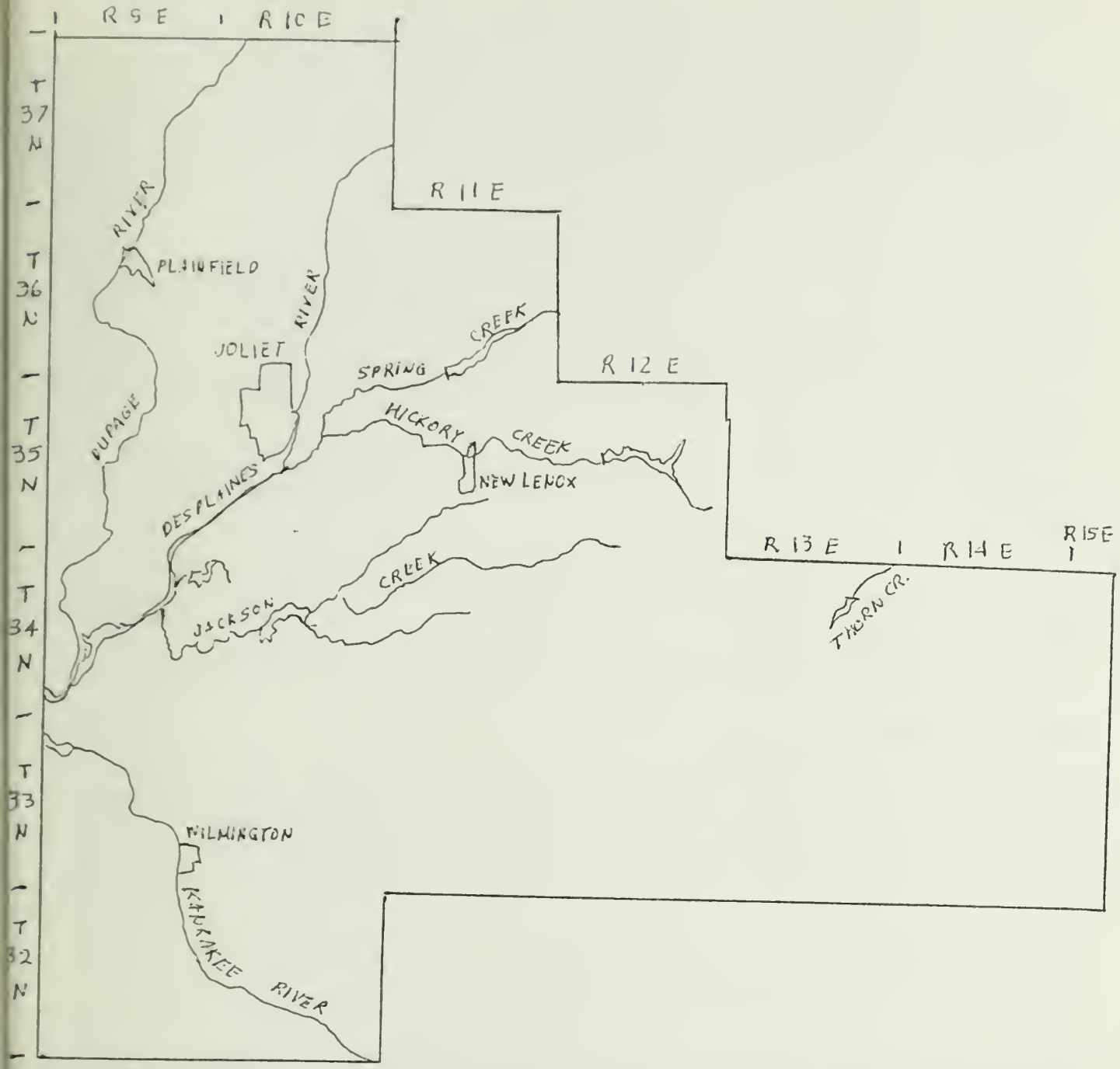
Figure 12. TRENDS IN RESIDENT SPORT FISHING LICENSE SALES 1943* - 1971*



*From 1962 - 1971 fishing licenses for people over 65 are included in above.

Source: Illinois Division of Fisheries(Springfield).

Fig. 13 MAP OF POTENTIAL LAKE AND RESERVIOR SITES FOR WILL COUNTY



Site No.	Waterway Location	Pool Area (Acres)
1.	Spring Creek	420
2.	Hickory Creek	530
3.	Thorn Creek	52
4.	Jackson Creek	255
5.	Cedar Creek	145

SOURCE OF DATA: Dawes, J. H. and M. L. Terstriep. 1967. Potential Surface Water Reservoirs of Northern Illinois. Illinois State Water Survey Report of Investigation Number 58.

Swimming

As a water-based activity, swimming does not rank high in Will County because of a lack of opportunity rather than a lack of interest. There are no public areas (not including pools) available to the public. Many of the clubs in the county have developed small beaches along their club lakes. Urbanization and more leisure time will require an increase in the number of surface water areas providing swimming facilities.

Camping

The fastest growing water-based recreation is camping. This is true throughout the state and in Will County. Kankakee River State Park, the only state park in Will County which provides camping facilities, has shown phenominal increase in campers over the last five years.

In addition to the area mentioned above, there are a few clubs which do offer camping facilities to their members only.

A portion of the Des Plaines Conservation Area is presently being developed to offer camping to the public. But as of this date the area is still closed to camping.

Because of the current camping boom and the presence of only one state area providing camping at the present time, there is a great need for additional campgrounds, both public and private in the county. These areas must be increased if they are to meet the greater demands that now exist for camping areas. Camping could well become the major water-based type of recreation in Will County.

Hunting and Trapping

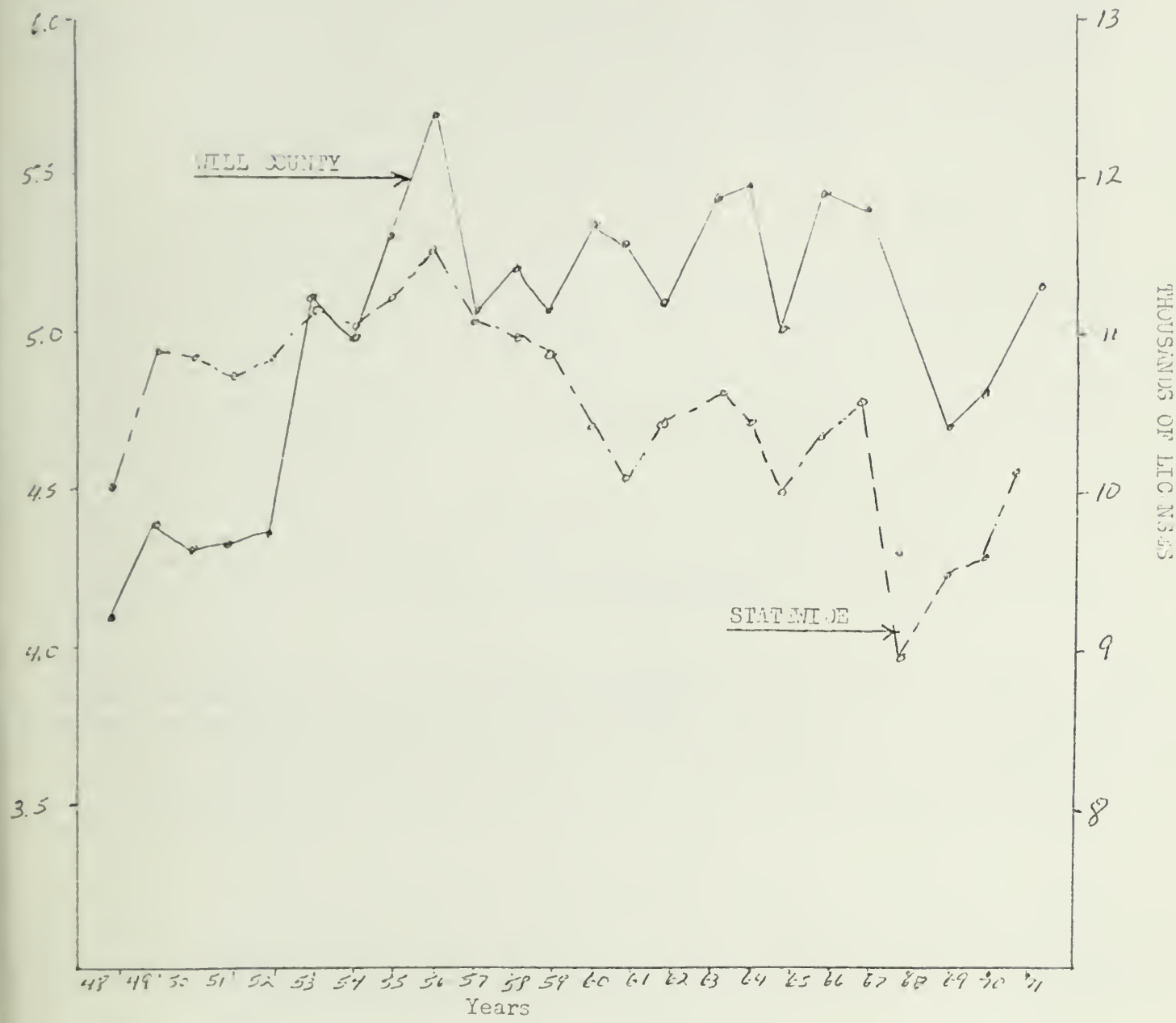
Hunting has provided an enjoyable source of outdoor recreation for large segments of the population of Illinois, but recently there has been a decline in the number of licenses sold. Figure 14 is a graphic representation of the data listed in Appendix 2. Both show the comparison between resident hunting license sales for Will County and the State of Illinois from 1948-1971. State-wide sales reached a peak of approximately 552,000 in 1956. There followed a general downward trend to about 398,000 in 1968 and a healthy increase to 463,000 in 1971. County-wide sales show the same trends reaching a peak of 12,469 in 1956 then generally declining to 9,621 in 1968 and increasing slightly to 11,409 in 1971. The reduction of sales to the low figure in 1968 may largely be attributed to wildlife habitat destruction and limited public access. Based on hunting license sales for the county, one out of 22 persons is licensed. Tables 10 and 11 show hunting pressure and harvest for northeastern Illinois and state-wide.

Upland game birds present in Will county are ringneck pheasant, Hungarian partridge, bobwhite quail and mourning doves. The pheasant population is fairly stable as numbers vary slightly from year to year. The quail and Hungarian partridge population is steadily increasing and has become firmly established. The mourning dove population is relatively stable. Waterfowl pass through the county during their annual migration, primarily along the Des Plaines and Kankakee rivers.

Game animals occurring in the county include the cottontail rabbit, grey and fox squirrel, and whitetailed deer. The Kankakee River bottomland and Des Plaines River bottomland provide excellent deer habitat.

Fur bearers in the county include the muskrat, mink, fox (red and grey),

FIGURE 14. TRENDS IN RESIDENT HUNTING LICENSE SALES 1948 - 1971*



* SOURCE: DIVISION OF FISHERIES FILES (SPRINGFIELD).

TABLE 10

HUNTER SUCCESS

Species	Northeastern Illinois Resource Area		State-Wide	
	Average Kill Per Hunt	Average Season Kill Per Hunt	Average Kill Per Hunt	Average Season Kill Per Hunt
Bobwhite Quail	0.94	2.5	2.62	10.3
Rabbits	1.10	3.9	1.57	7.0
Pheasants	0.75	2.6	0.74	2.5
Mourning Doves	2.30	7.8	3.70	11.9
Squirrels	1.50	4.3	2.06	10.7
Ducks	0.71	3.5	1.19	7.5
Geese	0.12	0.6	0.49	1.8

Source: U.S.D.A. Soil Conservation Service, 1967. Resource Study of Northeastern Illinois, Section IV.

TABLE 11

HUNTING PRESSURE AND HARVEST

Species	Percent of Total State Hunting Pressure In Northeastern Illinois	Percent of Total State Harvest In Northeastern Illinois
Pheasants	54.3	55.5
Rabbits	20.3	13.6
Ducks	16.2	9.7
Mourning Doves	15.1	9.6
Geese	11.4	2.9
Squirrels	8.5	6.1
Bobwhite Quail	4.0	1.4

Source: U.S.D.A. Soil Conservation Service, 1967. Resource Study of Northeastern Illinois, Section IV.

RACCOON, SKUNK, OPOSSUM, WOODCHUCH, AND BEAVER. RESIDENT TRAPPING LICENSE SALES FOR WILL COUNTY AND THE STATE OF ILLINOIS HAVE SHOWN A GENERAL DECLINE (FIG. 15). IN 1971 THERE WERE 78 LICENSED TRAPPERS IN THE COUNTY (APPENDIX 2). THIS DECLINE IS PRIMARILY DUE TO A DECREASE IN FUR PRICES OVER THE YEARS.

PUBLIC HUNTING IN WILL COUNTY IS OFFERED BY THE STATE OF ILLINOIS ON A PERMIT BASIS AT THE DES PLAINES CONSERVATION AREA. EACH DAY FOR A PERIOD OF 22 DAYS, PEN REARED RINGNECK PHEASANTS ARE RELEASED ON THE AREA (THE ENTIRE AREA IS OPEN FOR HUNTING FOR 30 DAYS, AFTER WHICH THE AREA IS CLOSED OFF). COTTONTAIL RABBITS AS WELL AS WHITETAIL DEER ARE HUNTED ON THE PROPERTY. THE AREA IS INTENSIVELY USED AS THE PUBLIC DEMAND FOR ACCESS TO GOOD HUNTING GROUNDS IS ON THE INCREASE. HUNTING IN WILL COUNTY COULD BE A WIDELY AVAILABLE RECREATIONAL ACTIVITY IF ACCESS TO GOOD HUNTING LAND WAS NOT LIMITED TO PRIVATE LAND.

AESTHETICS

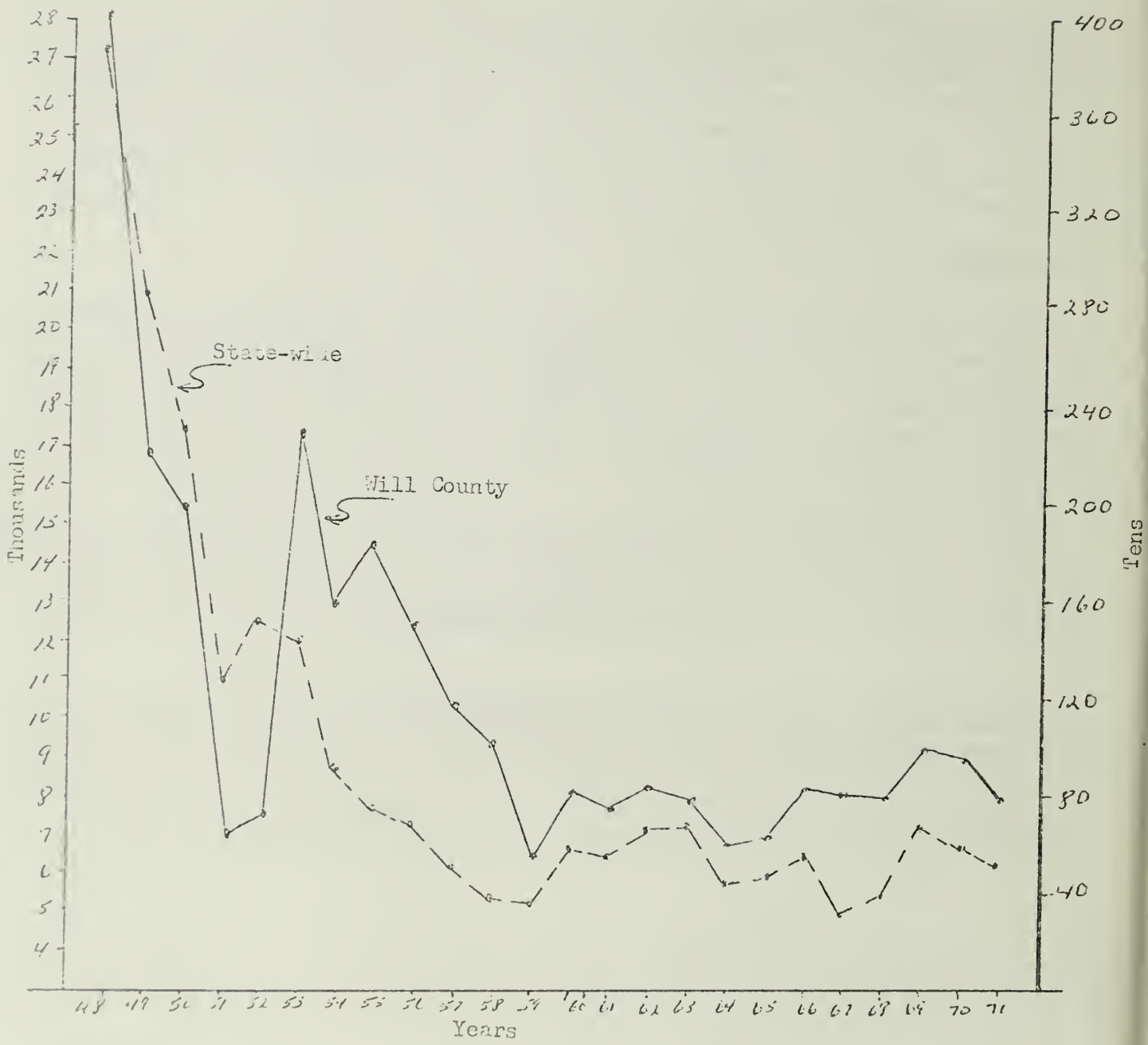
AESTHETICS ARE AN IMPORTANT ELEMENT OF WATER USE. THE APPEAL OR ENJOYMENT OF NATURES BEAUTY IS OFTEN INCLUDED IN REAL ESTATE VALUES. WATER FRONTAGE IS BECOMING QUITE EXPENSIVE. THE KANKAKEE RIVER IN WILL COUNTY IS AN AREA OF AESTHETIC VALUE TO THE PEOPLE OF THE COUNTY. AN IMPROVEMENT OF WATER QUALITY WOULD GREATLY ENHANCE SOME OF THE ALREADY PICTURESQUE AREAS ALONG THE KANKAKEE, DU PAGE AND DES PLAINES RIVERS. AESTHETICS WILL BECOME MORE VALUABLE TO THE PUBLIC AS TIME GOES ON AND WILL ALWAYS BE IN INCREASING DEMAND.

THE WILD OUT-OF-DOOR ATMOSPHERE SHOULD BE INCORPORATED IN OPEN SPACE DEVELOPMENT INCLUDING THE RETENTION AND CONSTRUCTION OF WILDLIFE MARSH AREAS AND LAKES WITH WILD SHORELINE AREAS. AS THE COUNTY BECOMES MORE INDUSTRIALIZED AND MORE URBANIZED, NATURE PRESERVES SHOULD BE ESTABLISHED WITH TRAILS. THESE AREAS SHOULD ATTRACT OR INTRODUCE WILDLIFE; IF NOT, ESTABLISH WITH NATURAL TYPES OF HABITAT FOR WILDLIFE OBSERVATION.

AS THE POPULATION GROWS, THE NEED FOR MORE AESTHETIC AREAS WILL INCREASE. THE AREAS REQUIRED TO APPEASE THIS FUTURE DEMAND SHOULD BE ACQUIRED AND DEVELOPED NOW, WHEN THEY ARE STILL AVAILABLE.

OUTDOOR EDUCATION PROGRAMS IN THE SCHOOL SYSTEMS WOULD HELP MAKE CHILDREN MORE APPRECIATIVE OF THE AESTHETIC VALUES TO BE FOUND IN THE COUNTY'S REMAINING NATURAL RESOURCES.

Fig. 15 TRENDS IN RESIDENT TRAPPING LICENSE SALES 1948 - 1971



SOURCE OF DATA: Division of Fisheries (Springfield)

SURFACE WATER PROBLEMS

STREAM POLLUTION NOT ONLY DESTROYS AESTHETIC APPEAL, BUT ALSO REDUCES THE VALUES OF ALL TYPES OF WATER-BASED RECREATION. FLUCTUATING WATER LEVELS MAY ALSO BE DETRIMENTAL TO SURFACE-ORIENTED ACTIVITIES AND MAY CAUSE EXTENSIVE PROPERTY DAMAGE. THESE TWO SURFACE WATER PROBLEMS ARE DISCUSSED IN THIS SECTION.

POLLUTION

MOST OF THE LAKES, STREAMS AND RIVERS IN WILL COUNTY ARE NOT HEAVILY POLLUTED. HOWEVER, THE DES PLAINES AND DU PAGE RIVERS OFTEN BECOME GROSSLY POLLUTED BECAUSE OF THE PREDOMINANCE OF WASTES FROM MUNICIPAL SEWAGE SYSTEMS AND FROM INDUSTRY ALONG THE RIVER'S SHORELINE. PARAMETERS INDICATING THE PRESENCE OF POLLUTION ATTEST TO THE POOR WATER QUALITY THAT OCCURS WITHIN CERTAIN STREAMS, PARTICULARLY THE DU PAGE AND DES PLAINES RIVERS. MINIMAL LEVELS OF DISSOLVED OXYGEN, HIGH LEVELS OF CHLORIDES, BIOCHEMICAL OXYGEN DEMAND, EXTREME CHANGES IN pH AND BACTERIAL COUNTS ARE A FEW INDICATIONS OF THE HIGH DEGREE OF POLLUTION.

MOST SEWAGE TREATMENT PLANTS CANNOT REMOVE MUCH MORE THAN 90 PERCENT OF THE BOD. MANY PLANTS ARE PLACED WITH PROBLEMS OF BY PASSING RAW SEWAGE AFTER PERIODS OF HEAVY RAINFALL BECAUSE OF COMBINED STORM AND SANITARY SEWAGE SYSTEMS. EVEN THE MOST EFFICIENT SEWAGE TREATMENT SYSTEMS MAKE AVAILABLE CONSIDERABLE QUANTITIES OF NITRATES, PHOSPHATES, CHLORIDES AND DETERGENTS TO RECEIVING STREAMS. DETERGENTS, ONCE A COMMON POLLUTANT, HAVE RECENTLY BEEN MADE BIODEGRADEABLE AND SHOULD NO LONGER CAUSE A SERIOUS PROBLEM. INDUSTRIAL POLLUTANTS, INCLUDING CYANIDE, HEAVY METALS, ACIDS AND OILS CONTINUE TO POSE PROBLEMS. HOWEVER, PROGRESS IS BEING MADE IN MANY AREAS.

DESPITE THE ORGANIC AND INDUSTRIAL POLLUTION SILTATION REMAINS THE NUMBER ONE STREAM POLLUTANT. MUCH EFFORT AND LONG RANGE PLANNING WILL BE NECESSARY BEFORE ABATEMENT OF THIS TYPE OF POLLUTION CAN BE ACCOMPLISHED. RECENTLY THERE HAS BEEN AN AWAKENING OF INTEREST IN POLLUTION CONTROL. WATER QUALITY MUST BE MAINTAINED AT A HIGH LEVEL FOR ALL THE MULTIPLE USES.

FLUCTUATING WATER LEVELS

FLUCTUATING WATER LEVELS CAUSE SUCH PROBLEMS AS INCREASED AND PROLONGED TURBIDITY, INCREASED SILTATION, BANK EROSION, INTERFERENCE WITH SPAWNING FISH, DESTRUCTION OF FISH NESTS, EGGS AND JUVENILE FISH, DISPLACEMENT OF FISH POPULATIONS FROM SMALL STREAMS AND DESTRUCTION OF DESIRABLE BOTTOM FAUNA.

DURING DRY PERIODS, SLOUGHS AND MARSHES BECOME ISOLATED, OFTEN DRY OUT, DESTROYING AQUATIC LIFE. SMALLER STREAMS BECOME INTERMITTENT AND BEGIN TO FORM SHALLOW POOLS WHICH STAGNATE AND KILL REMAINING FISH. THE REDUCED NATURAL FLOW IN LARGER STREAMS IS SUBSTITUTED WITH INCREASED VOLUMES OF SEWAGE TREATMENT PLANT EFFLUENT RICH IN NUTRIENTS WHICH PROMOTE EXCESSIVE ALGAL BLOOMS AND GROWTH OF OTHER AQUATIC PLANTS. THE LACK OF SUFFICIENT FLOW COUPLED WITH EXCESSIVE AQUATIC VEGETATION MAY RESULT IN FISH KILLS CAUSED BY LOW DISSOLVED OXYGEN LEVELS.

EXTREME VARIATIONS IN STREAM WATER LEVELS CAN EFFECT ADJACENT FLOODPLAIN IMPOUNDMENTS AS WELL. FLOOD CONDITIONS IN VARIOUS STREAMS HAS CAUSED THE CONTAMINATION OF PONDS WITH UNDESIRABLE FISH. ON THE OTHER HAND LOW WATER LEVELS MAY CAUSE AN IMPOUNDMENT TO SHRINK IN SIZE AND BECOME SHALLOWER THUS ENCOURAGING THE EXPANSION OF ROOTED AQUATIC VEGETATION. THE LOWER WATER LEVEL ALSO REDUCES RECREATIONAL USES OF THE IMPOUNDMENT

SEVERE FLOODING IN JOLIET OCCURS ON HICKORY AND SPRING CREEKS. THE KANKAKEE RIVER AT TIMES WILL FLOOD OUT LARGE AREAS, FLOODING CROPS AND HOMES. HOWEVER, SEVERE FLOODING SELDOM OCCURS AND THEN ONLY IF ICE JAMS CAUSE WATER TO FLOOD THE LOWLAND.

THE FUTURE

THERE IS A DEFINITE NEED FOR MORE PUBLIC OUTDOOR RECREATIONAL FACILITIES IN WILL COUNTY.

WILL COUNTY'S POPULATION WAS 249,498 IN 1970 AND IS EXPECTED TO REACH MORE THAN 325,000 IN 1980 (RESOURCES STUDY OF NORTHERN ILLINOIS, 1967). NOT ONLY WILL COUNTY'S POPULATION IS GROWING, BUT ITS NEIGHBORING COUNTIES AS WELL ARE INCREASING; SOME AT AN EVEN FASTER RATE. AS RECREATIONAL FACILITIES BECOME CROWDED IN THESE NEIGHBORING COUNTIES, PEOPLE WILL LOOK TOWARD WILL COUNTY AND OTHERS FOR OUTDOOR RECREATIONAL FACILITIES.

IT APPEARS WE MUST ACCELERATE OUR EFFORTS IF WE HOPE TO MEET THE EXISTING DEMAND, LET ALONE THE FUTURE DEMAND. ACQUISITION OF POTENTIAL RECREATIONAL RESOURCE AREAS, SUCH AS MARSHES, SLOUGHS, STREAMS, LAKES, LAKE SITES, AND WOODLANDS MUST BE ACQUIRED IN THE IMMEDIATE FUTURE OR IT WILL NO LONGER BE AVAILABLE FOR RECREATIONAL DEVELOPMENT. REUSE AND RECLAMATION OF MORE COUNTY WATER RESOURCES WILL BECOME NECESSARY AS THE POPULATION INCREASES.

INCREASED LEISURE TIME, PERSONAL INCOME, AND MOBILITY WILL ALSO INFLUENCE FUTURE RECREATIONAL NEEDS IN THE COUNTY. THE INCREASED USE OF OUR EXISTING LOCAL PARKS, FOREST PRESERVES AND STATE PARKS INDICATES THE DEFICIENCY THAT ALREADY EXISTS. THE CHALLENGE WE FACE IN THE FUTURE IN MEETING THE NEEDS FOR ALL FORMS OF READILY ACCESSIBLE OUTDOOR RECREATION FACILITIES IS AT HAND; IF WE DO NOT ACT NOW, THEN FOREVER SHALL WE REGRET.

THERE ARE AREAS IN WILL COUNTY WHICH HAVE THE LAND AND AESTHETIC VALUE AVAILABLE TO FULFILL THE NEEDS OF FUTURE GENERATIONS. THIS IS ESPECIALLY TRUE OF BOTH STREAM AND LAKE FISHING, CAMPING AND TO A LESSER DEGREE THE OTHER TYPES OF WATER-BASED RECREATION.

APPENDIX

APPENDIX 1

LIST OF THE FISH SPECIES KNOWN TO OCCUR IN THE WATERS OF WILL COUNTY WITH SPECIAL REFERENCE TO THE FOLLOWING AREAS

1. Kankakee River
2. Du Page River
3. East Branch Du Page River
4. Des Plaines River
5. Prairie Creek
6. Forked Creek
7. Illinois and Michigan Canal
8. Jackson Creek
9. Hickory Creek
10. Spring Creek
11. Des Plaines Conservation Area Lake
12. Pure Rod and Gun Club
13. Area #1 Outdoor Club
14. Bass and Gill Club
15. Braidwood Recreation Club
16. New Lenox Recreation Club
17. Peotone Sportsmen Club
18. Plainfield Fishing Resort
19. Joliet Junior College Lake

Common Name	Scientific Name	Location
Bowfin	*Amia calva*	1
Gizzard shad	*Dorosoma cepedianum*	1,7,13,15,16
Redear sunfish	*Lepomis microlophus*	16,18,19
Grass pickerel	*Esox americanus vermiculatus*	1,2,5,6,12,13,14,15,16
Northern pike	*Esox lucius*	1,5,6,11,12,13,14,15,16,18
Stoneroller	*Campostoma anomalum*	1,2,3,5,6,8,9,10
Carp	*Cyprinus carpio*	1,2,3,4,5,6,7,9,10,11,12,13,14,15,16,18
Goldfish	*Carassius auratus*	1,4,7,9,10,13
Hornyhead chub	*Nocomis biguttatus*	1,2,5,6,8,9
Southern redbelly dace	*Phoxinus erythrogaster*	1,5,6
Golden shiner	*Notemigonus crysoleucas*	1,3,10,11,12,13,14,15,16,18
Emerald shiner	*Notropis atherinoides*	1,5,6
Blacknose shiner	*Notropis heterolepis*	1,5,6
Rosyface shiner	*Notropis rubellus*	1,5,6
Spotfin shiner	*Notropis spilopterus*	1,2,3,5,6,15,16,18
Sand shiner	*Notropis stramineus*	1,2,3,5,6,9
Mimic shiner	*Notropis volucellus*	1,5
Striped shiner	*Notropis chrysocephalus*	1,5,9
Bigmouth shiner	*Notropis dorsalis*	1,2,5
Bluntnose minnow	*Pimephales notatus*	1,2,3,5,6,8,9,10,13,14,15,16,18
Flathead minnow	*Pimephales promelas*	1,2,3,5,6,12,13,15,16,18
Spottail shiner	*Notropis hudsonius*	1,3,5,6,15
Creek chub	*Semotilus atromaculatus*	1,2,3,5,6,9,10
Quillback carpsucker	*Carpoides cyprinus*	1,3,5,6,7
Common white sucker	*Catostomus commersoni*	1,2,3,4,5,6,9,10,12,13,14,15,16,18
Northern hog sucker	*Hypentelium nigricans*	1,5,6,9
Smallmouth buffalo	*Ictiobus bubalus*	1
Bigmouth buffalo	*Ictiobus cyprinellus*	1,5,6
Golden redhorse	*Moxostoma erythrurum*	1,5,6
Shorthead redhorse	*Moxostoma macrolepidotum*	1,4,5,8
Silver redhorse	*Moxostoma anisurum*	1,5,6
Black bullhead	*Ictalurus melas*	1,2,3,5,6,7,9,10,11,12,13,14,15,16,18,19
Yellow bullhead	*Ictalurus natalis*	1,8,12
Brown bullhead	*Ictalurus nebulosus*	12
Channel catfish	*Ictalurus punctatus*	1,4,5,6,7,11,12,13,14,15,16,17,18

APPENDIX 1 (CONT'D.)

COMMON NAME	SCIENTIFIC NAME	LOCATION
STONECAT	NOTURUS FLAVUS	1,5,6,9
TADPOLE MADTOM	NOTURUS GYRINUS	1,5
BLACKSTRIPE TOPMINNOW	FUNDULUS NOTATUS	5,8,15,17
YELLOW BASS	MORONE MISSISSIPPIENSIS	1,18
WHITE BASS	MORONE CHRYSOPS	1,3,11,12
ROCK BASS	AMBLOPLITES RUPESTRIS	1,5,6,8,9,11,15,16,18
WARMOUTH	LEPOMIS QULOSUS	1,15,18
GREEN SUNFISH	LEPOMIS CYANELLUS	1,2,3,5,6,7,8,9,10,11,13, 14,15,16,17,18
PUMPKINSEED SUNFISH	LEPOMIS GIBBOSUS	1,2,3,5,6,7,13,15,18
ORANGESPOT SUNFISH	LEPOMIS HUMILIS	1,2,3,5,6,7,9,13,15,18
BLUEGILL	LEPOMIS MACROCHIRUS	1,3,5,7,9,10,11,12,13,14, 15,16,17,18,19
SMALLMOUTH BASS	MICROPTERUS DOLOMIEUI	1,2,3,4,5,6,8,9,11,15,18
LARGEMOUTH BASS	MICROPTERUS SALMOIDES	1,2,3,5,6,7,9,10,11,12,13, 14,15,16,17,18,19
WHITE CRAPPIE	POMOXIS ANNULARIS	1,4,7,11,12,13,14,15,16,17,1
BLACK CRAPPIE	POMOXIS NIGROMACULATUS	1,3,4,7,11,13,14,15,16,18
JOHNNY DARTER	ETHEOSTOMA NIGRUM	1,2,8,9,10
YELLOW PERCH	PERCA FLAVESCENS	13,15,16,17,18
WALLEYE	STIZOSTEDION VITREUM VITREUM	1,11,13,15,16,18
FRESHWATER DRUM	APLODINOTUS GRUNNIENS	1,18
PIRATE PERCH	APHREDODERUS SAYANUS	1
SPOTTED SUCKER	MINYTREMA MELANOPS	1
BLACKSIDE DARTER	PERCINA MACULATA	1
LONGNOSE GAR	LEPISOSTEUS OSSEUS	1,4,11
PUGNOSE MINNOW	NOTROPIS EMILIAE	1
NORTHERN COMMON SHINER	NOTROPIS CORNUTUS	1,2,3,5,6,8,9,15
REDFIN SHINER	NOTROPIS UMBRETILIS	1,2,3,5,6,8,9
ORANGETHROAT DARTER	ETHEOSTOMA SPECTABILE	10,8
BULLHEAD MINNOW	PIMEPHALES VIGILAX	1
CENTRAL MUDMINNOW	UMBRA LIMI	1,3
RAINBOW TROUT	SALMO GAIRDNERI	15,18
CHESTNUT LAMPREY	ICHTHYOMYZON EASTANEUS	1
AMERICAN EEL	ANGUILLA ROSTRATA	1
TOTAL IN SAMPLE	67 SPECIES	10 STREAMS 9 LAKES

APPENDIX 2

SUMMARY OF STATE-WIDE AND WILL COUNTY SALES FOR FISHING, HUNTING, TRAPPING AND BOATING LICENSES FOR THE PERIOD 1948-1971*

Year	Resident Sport Fishing Licenses (Including 65 Sales)		Resident Hunting License		Resident Trapping License		Resident Licensed Boats (All Types)	
	Statewide	Will	Statewide	Will	Statewide	Will	Statewide	Will
1948	666,278	12,971	450,961	9,212	27,157	307	-------	-----
1949	727,523	13,726	497,104	9,842	20,981	225	-------	-----
1950	730,806	13,536	491,904	9,625	17,388	195	-------	-----
1951	746,404	14,009	477,365	9,648	10,955	57	-------	-----
1952	786,252	15,376	492,711	9,727	12,407	66	-------	-----
1953	773,870	15,584	508,456	11,254	11,935	224	-------	-----
1954	793,109	18,257	505,971	11,006	8,347	158	-------	-----
1955	813,319	18,410	520,824	11,680	7,284	104	-------	-----
1956	795,728	19,142	552,050	12,469	7,250	146	-------	-----
1957	805,582	18,144	510,037	11,175	6,143	118	-------	-----
1958	727,978	20,327	501,191	11,476	5,259	102	-------	-----
1959	657,544	14,771	491,215	11,200	5,238	48	-------	-----
1960	631,213	14,451	471,117	11,725	6,535	83	-------	-----
1961	619,376	14,588	462,132	11,641	6,416	72	-------	-----
1962	597,879	14,521	472,767	11,204	7,171	84	141,751	3,323
1963	612,138	15,165	482,181	11,862	7,193	76	152,198	3,618
1964	588,142	15,136	473,811	11,919	5,735	62	151,081	3,613
1965	598,364	15,719	451,585	11,032	5,931	67	156,132	3,733
1966	622,820	15,778	469,520	11,885	6,270	63	154,812	3,736
1967	649,905	15,619	480,252	11,824	4,985	80	165,341	4,070
1968	708,039	15,675	398,668	9,621	5,416	79	187,518	4,702
1969	713,490	17,249	427,344	10,431	7,218	97	197,129	5,028
1970	739,099	16,754	447,578	10,652	6,574	86	171,469	4,345
1971	776,392	17,287	463,977	11,409	6,225	78	184,162	4,658

*Source of Data: Division of Fisheries and Accounting, Illinois Department of Conservation, Springfield.

APPENDIX 3

COMMERCIAL FISHING LICENSE SALES FOR WILL COUNTY FROM 1951-1971*

	TYPE OF GEAR							
YEAR	DIP NET	HOOP NET BASKET TRAP	MINNOW SEINE	SEINE 100 YDS	TROT LINE	MUSSEL GEAR	TRAMMEL NET	GILL NET
1951					1		15	
1952					521			
1953					477			
1954			6		30			
1955			11		23			
1956			7		25			
1957			5		11			
1958		1	5		17			
1959					5			
1960		1	1		16			
1961			1		20			
1962			1		28			
1963			1		21			
1964			1		6			
1965			1		16			
1966			1		11			
1967			2		12			
1968			1		298			
1969			2		255			
1970			1		14			
1971			1		10			

*SOURCE - ILLINOIS DIVISION OF FISHERIES RECORDS (SPRINGFIELD)

APPENDIX 4

SUMMARY OF ATTENDANCE AT ALL STATE PARKS, KANKAKEE RIVER STATE PARK AND THE DES PLAINES CONSERVATION AREA FOR THE PERIOD OF 1950 - 1972*

YEAR	STATE-WIDE PARK ATTENDANCE	KANKAKEE RIVER STATE PARK ATTENDANCE	DES PLAINES CONSERVATION AREA ATTENDANCE
1950	9,032,064	94,249	------
1951	10,592,320	93,679	------
1952	9,[illegible],[illegible]	173,176	------
1953	6,834,187	188,810	------
1954	9,250,604	270,578	------
1955	9,342,931	187,075	------
1956	10,099,628	226,716	------
1957	11,823,529	306,962	------
1958	13,815,958	264,705	------
1959	8,524,976	306,475	------
1960	8,375,689	378,823	------
1961	9,526,952	419,037	------
1962	10,849,299	496,781	------
1963	13,222,701	524,513	------
1964	15,976,040	502,026	------
1965	17,982,381	800,212	------
1966	19,879,961	1,101,694	------
1967	20,338,277	734,339	------
1968	22,470,073	1,047,769	------
1969	22,730,019	799,293	------
1970	24,163,319	1,016,476	97,288
1971	25,893,977	996,721	16,850
1972	23,848,000	961,374	48,057

*ILLINOIS DIVISION OF PARKS AND MEMORIALS RECORDS (SPRINGFIELD)

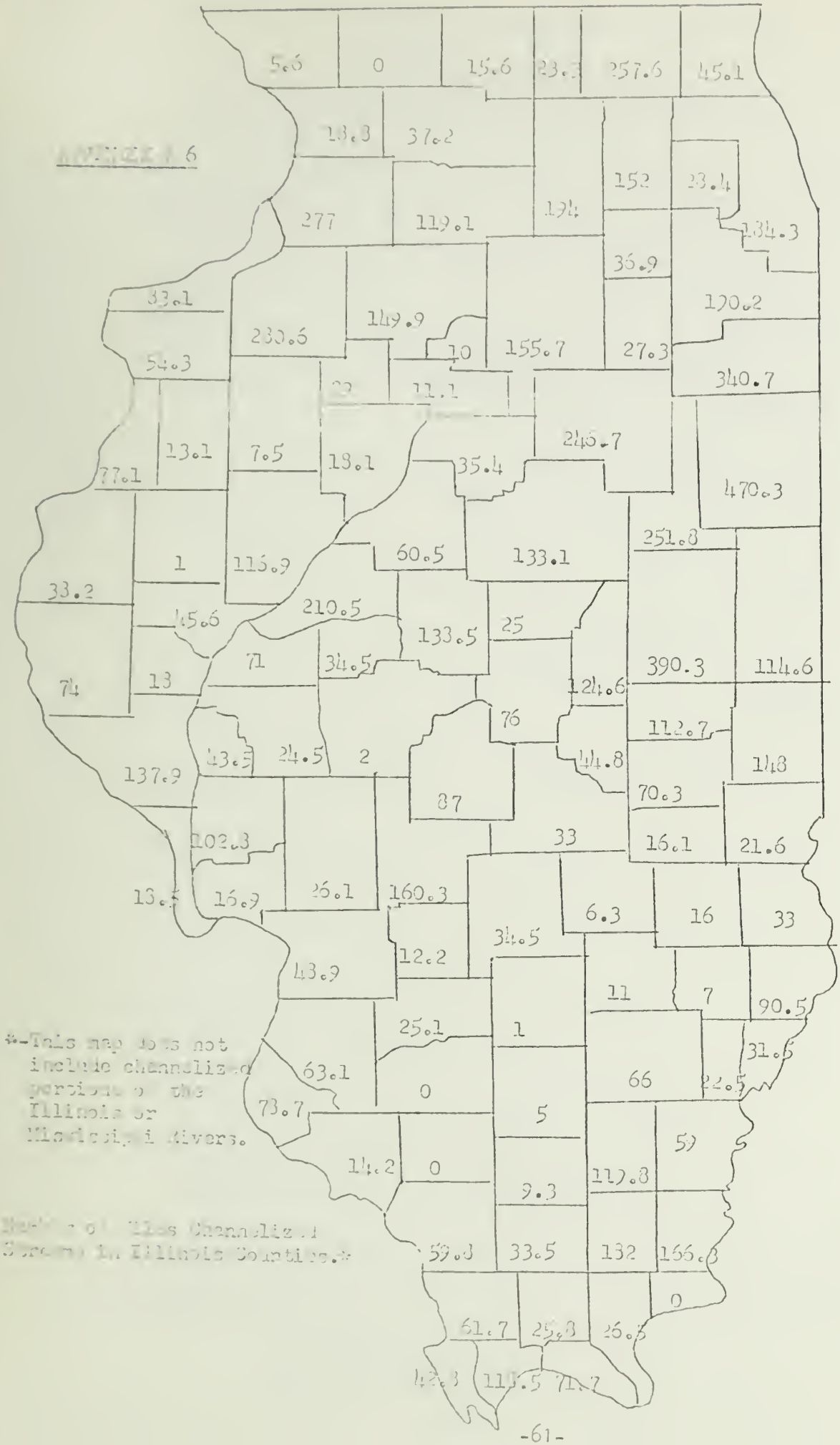
APPENDIX 5

WATER CHEMISTRY DATA FOR SAMPLES ON SIX STREAMS IN WILL COUNTY IN 1971*

Station Location	Dissolved Oxygen mg/L	Chlorides mg/L	Sulfates mg/L as SO_4	Alkalinity mg/L as $CaCO_3$	Nitrate mg/L as NO_3	Ammonia mg/L as N	Total Phosphate mg/L as PO_4	pH	Iron mg/L	Coliform /100 ml
Kankakee River Rt. 66 Bridge	10.7	25	100	130	2	2.8	0.8	8.1	---	4,120
Des Plaines River Rt. 66 Bridge E. of Channahon	5.5	100	134	172	2	8.3	3.6	7.5	0.3	62,445
Du Page River Rt. 6 Bridge	5.9	201	169	273	3	2.4	5.6	8.4	3.5	5,700
Hickory Creek Gauges Road	6.5	161	201	254	2	0.5	1.9	8.0	---	2,700
E. Branch Du Page River, Washington St. & Modoff	5.1	150	160	300	0	14.0	15.7	7.8	---	6,666
Illinois & Michigan Canal, 35th above Lockport	10.2	107	337	169	0	0.4	0.5	7.3	---	700

Source of Data: State of Illinois, 1971. Water Quality Network 1971 Summary of Data, Volumes I & II

*Stations indicated above represent only one of several stations on each stream in the county and the average figure for that station in 1971.

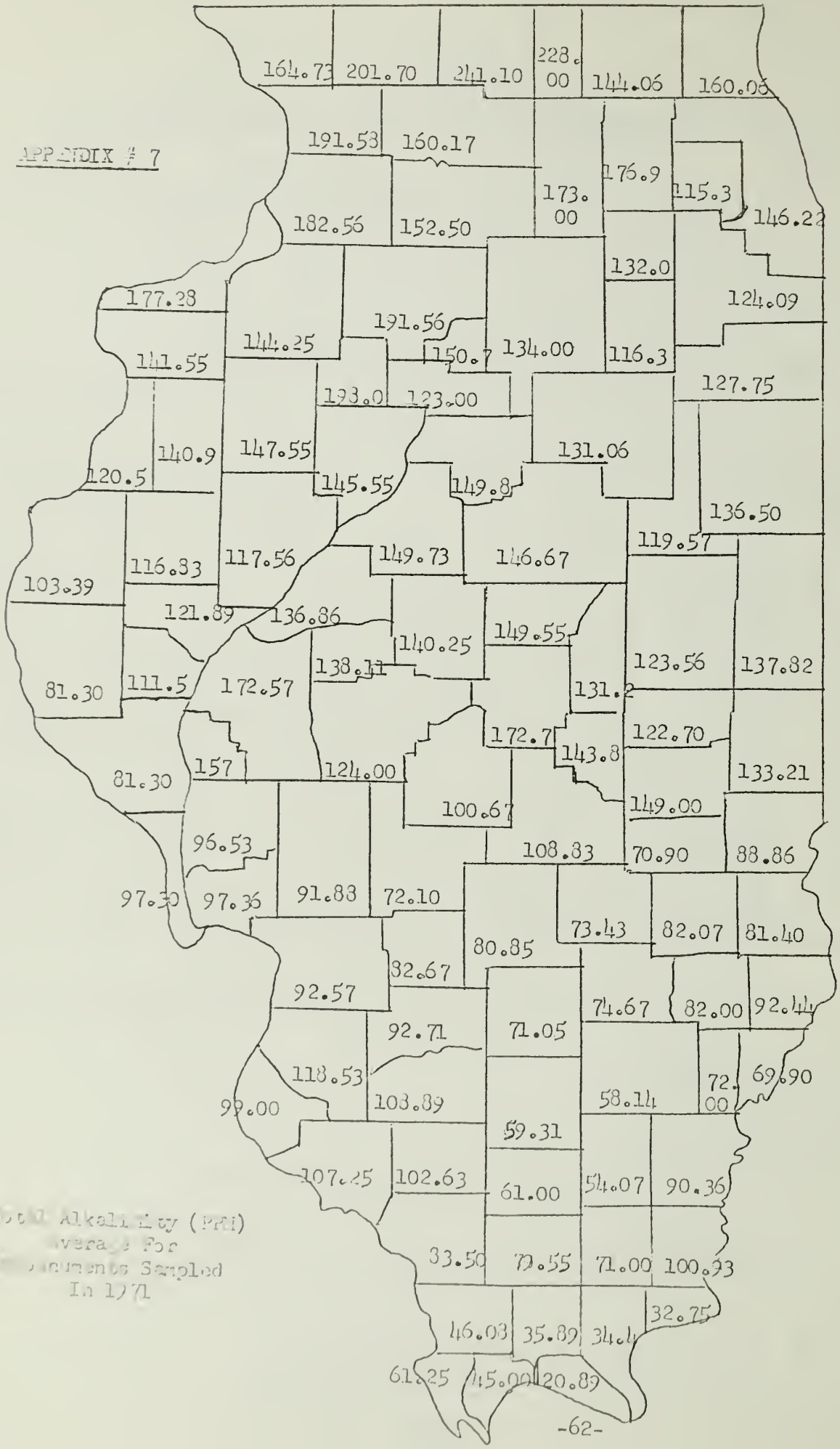


APPENDIX 6

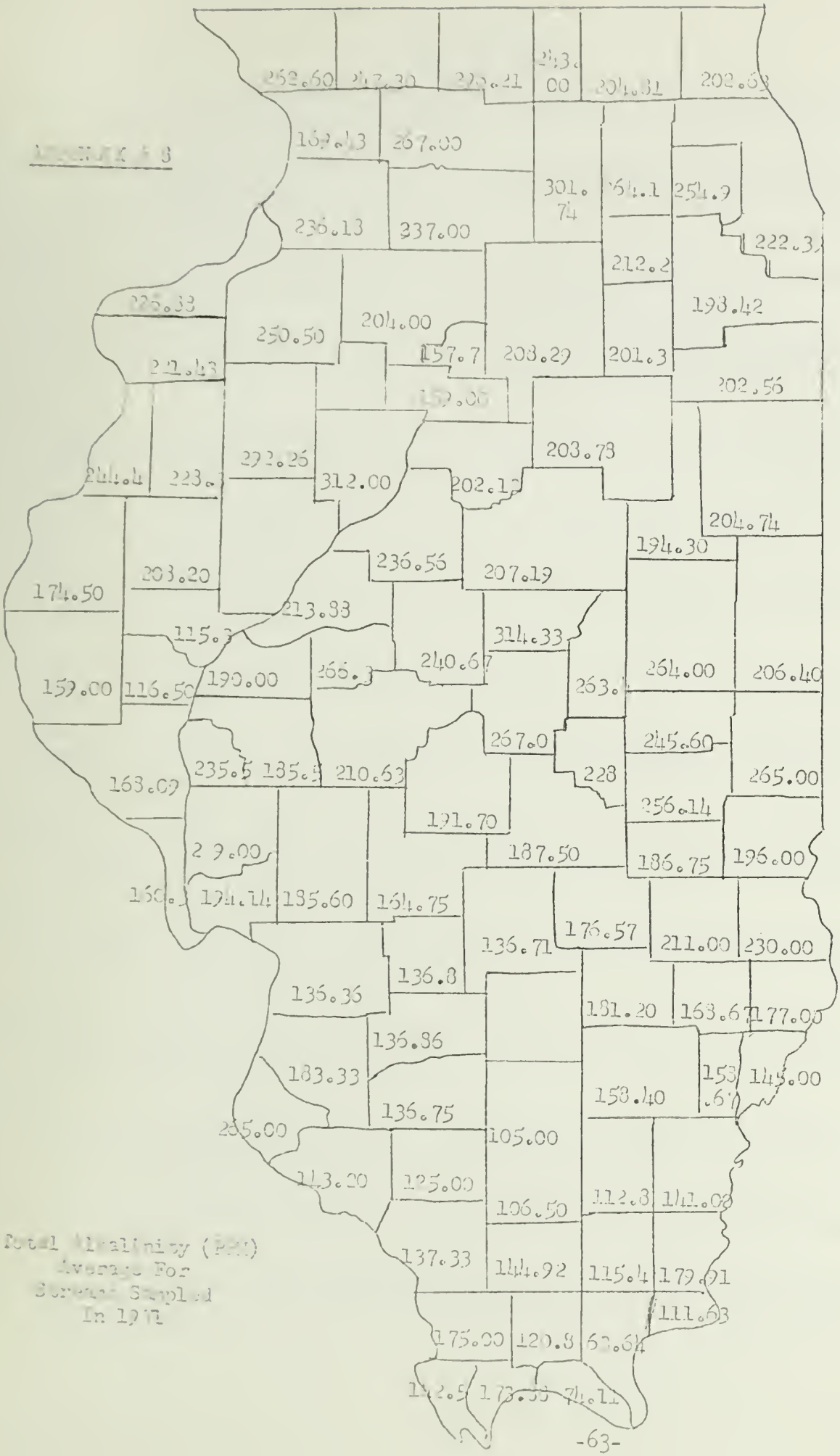
*-This map does not include channelized portions of the Illinois or Mississippi Rivers.

Number of Miles Channelized Streams in Illinois Counties.*

APPENDIX # 7



Total Alkalinity (PPM)
Average For
Impoundments Sampled
In 1971



Total Alkalinity (PPM)
Average For
Streams Sampled
In 1971

BIBLIOGRAPHY

BERGSTROM, R. E. ET AL. 1955. GROUNDWATER POSSIBILITIES IN NORTHEASTERN ILLINOIS. ILLINOIS STATE GEOLOGICAL SURVEY ARTICLE NO. 198. URBANA. 23 PP.

DAWES, J. H. AND M. L. TERSTRIEP. 1967. POTENTIAL SURFACE WATER RESERVOIRS OF NORTHERN ILLINOIS. ILLINOIS STATE WATER SURVEY REPORT OF INVESTIGATION NO. 58. URBANA. 85 PP.

HUFF, F. A. AND S. A. CHANGNON, JR. 1963. DROUGHT CLIMATOLOGY OF ILLINOIS. ILLINOIS STATE WATER SURVEY BULLETIN 50. URBANA. 68 PP.

ILLINOIS COOPERATIVE CROP REPORTING SERVICE. 1973. ILLINOIS AGRICULTURAL STATISTICS. ILLINOIS DEPARTMENT OF AGRICULTURE AND UNITED STATES DEPARTMENT OF AGRICULTURE. BULLETIN S.F.C. - 35. SPRINGFIELD. 31 PP.

ILLINOIS STATE ENVIRONMENTAL PROTECTION AGENCY. 1971. WATER QUALITY NETWORK 1971 SUMMARY OF DATA VOLUMES I AND II. SPRINGFIELD.

LARSON, T. E. AND B. O. LARSON. 1957. QUALITY OF SURFACE WATERS IN ILLINOIS. ILLINOIS STATE WATER SURVEY BULLETIN NO. 45, URBANA. 135 PP.

LOPINOT, A. C. ET AL. 1972. CHANNELIZED STREAMS AND DITCHES OF ILLINOIS. SPECIAL FISHERIES REPORT NO. 35, ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD. 59 PP.

LOPINOT, A. C. ET AL. 1967. THE ILLINOIS ANGLER. ILLINOIS DEPARTMENT OF CONSERVATION DIVISION OF FISHERIES, SPRINGFIELD. 81 PP.

LOPINOT, A. C. ET AL. 1972. ILLINOIS SURFACE WATER INVENTORY. SPECIAL FISHERIES REPORT NO. 40. ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD.

LOPINOT, A. C. ET AL. 1964. INVENTORY OF THE FISHES OF FOUR RIVER BASINS IN ILLINOIS IN 1963. SPECIAL FISHERIES REPORT NO. 3, ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD. 61 PP.

LOPINOT, A. C. ET AL. 1965. INVENTORY OF THE FISHES OF FOUR RIVER BASINS IN ILLINOIS IN 1964. SPECIAL FISHERIES REPORT NO. 8, ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD. 81 PP.

LOPINOT, A. C. ET AL. 1967. INVENTORY OF THE FISHES OF NINE RIVER BASINS IN ILLINOIS 1967. SPECIAL FISHERIES REPORT NO. 25, ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD. 173 PP.

LOPINOT, A. C. ET AL. 1972. TOTAL ALKALINITY OF ILLINOIS SURFACE WATERS. SPECIAL FISHERIES REPORT NO. 36, ILLINOIS DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, SPRINGFIELD. 13 PP.

NORTH-CENTRAL DIVISION, AMERICAN FISHERIES SOCIETY. 1971. STREAM CHANNELIZATION-A SYMPOSIUM. SPECIAL PUBLICATION NO. 2. OMAHA. 83 PP.

PRICKETT, T. A. ET AL. 1964. GROUNDWATER DEVELOPMENT IN SEVERAL AREAS OF NORTH-EASTERN ILLINOIS. ILLINOIS STATE WATER SURVEY REPORT OF INVESTIGATION NO. 47, URBANA. 93 PP.

SHEAFFER, J. R. ET AL. 1966. THE WATER RESOURCE IN NORTHEASTERN ILLINOIS-PLANNING ITS USE. NORTHEASTERN ILLINOIS METROPOLITAN AREA PLANNING COMMISSION TECHNICAL REPORT NO. 4, CHICAGO. 182 PP.

STALL, J. B. AND D. W. HIESTAND. 1969. PROVISIONAL TIME-OF-TRAVEL FOR ILLINOIS STREAMS. ILLINOIS STATE WATER SURVEY REPORT OF INVESTIGATION NO. 63, URBANA. 31 PP.

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE. 1969. AN APPRAISAL OF POTENTIAL FOR OUTDOOR RECREATIONAL DEVELOPMENT IN NORTHEASTERN ILLINOIS. LINCOLN. 94 PP.

UNITED STATE DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE. 1967. RESOURCE STUDY OF NORTHEASTERN ILLINOIS. NEBRASKA. 125 PP.

WASCHER, H. L. ET AL. 1962. WILL COUNTY SOILS. SOIL REPORT 80, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, UNIVERSITY OF ILLINOIS AGRICULTURAL EXPERIMENT STATION. URBANA, 108 PP.

WILLMAN, H. B. ET AL. 1967. GEOLOGIC MAP OF ILLINOIS. ILLINOIS STATE GEOLOGICAL SURVEY. URBANA.

OTHER SOURCES OF DATA

AERIAL PHOTOGRAPHS (A.S.C.S.)
DEPARTMENT OF PUBLIC HEALTH (SPRINGFIELD)
DIVISION OF ACCOUNTING FILES (SPRINGFIELD)
DIVISION OF FISHERIES FILES (SPRINGFIELD)
DISTRICT FISHERIES FILES (PLANO)
U. S. BUREAU OF CENSUS
U. S. DEPARTMENT OF COMMERCE-NATIONAL WEATHER SERVICE (CHICAGO)
WILL COUNTY SOIL CONSERVATION SERVICE OFFICE (JOLIET)
TOPOGRAPHICAL MAPS (U. S. GEOLOGIC SURVEY)

GLOSSARY

ACRE FOOT - An area of one acre covered to a depth of one foot. One acre foot is 43,560 cubic feet or 325,851 gallons of water.

AESTHETICS - The overall scenic attraction of a lake setting; natural beauty of shores and waters, or any unusual natural phenomena; the appeal of its wildlife and aquatic plants.

ALGAE BLOOM - A bloom of algae (microscopic plants) may be so dense that it imparts a greenish, yellowish or brownish color to the water.

ALKALINITY - Ordinarily expressed as a pH above 7. Most water in the alkaline class has a range from pH 7.0 to 10.0. Alkalinity may be expressed as the amounts of carbonates, bicarbonates, and hydroxides present in the water.

ALLUVIUM - The sediments, or detrital matter, carried by inflowing streams and deposited on lake bottom.

ANTICLINE - An arch of stratified rock in which layers bend downward in opposite directions from the crest.

AQUATIC PLANTS - Plants whose seeds germinate in the water or in the lake bottom soil; those that grow in water and are commonly grouped as floating, submersed and emersed.

AQUIFER - Any geological formation containing water, especially one which supplies the water for wells and springs.

ARTIFICIAL IMPOUNDMENT - Basins purposely excavated by man and filled with water by catchment from runoff, by pumping or by diversion of natural water bodies.

BASE FLOW - Flow in a stream when no runoff or precipitation is taking place.

BOD - The abbreviation for biochemical oxygen demand which is a measure of the amount of water soluble oxygen required by microscopic organisms to decompose a given amount of organic material in a specific amount of time.

COD - Abbreviation for chemical oxygen demand which is a measure of the chemically oxidizable organic matter in a given sample of water. The ratio between the BOD and COD is an indication of the relative proportion of biologically available organic matter in a given sample.

CARRYING CAPACITY - The maximum number (or weight) of organisms of a given species and quality which can survive in a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time.

COMMERCIAL FISH - Fish that are caught by special tackle and sold.

CREEL CENSUS - Information obtained from anglers on their fishing success. A creel census can give information on fishing pressure, fishing quality, the total number and weight of fish being harvested, and the kind and size of fish being caught.

DERELICT LANDS - Those quarries, gravel pits and strip mines which have been abandoned or are depleted.

DO - AN ABBREVIATION FOR DISSOLVED OXYGEN WHICH IS OXYGEN AVAILABLE IN WATER FOR THE SURVIVAL OF FISH AND OTHER ORGANISMS.

DRAINAGE BASIN OR AREA - THAT PART OF A LAND AREA OVER WHICH RUNOFF WATER DRAINS TO A COMMON POINT. SEE WATERSHED.

ECOLOGICAL - PERTAINING TO THE INTERRELATIONSHIP OF LIVING THINGS AND THEIR ENVIRONMENT.

ECOSYSTEM - A COMMUNITY OF ORGANISMS, INTERACTING WITH ONE ANOTHER, PLUS THE ENVIRONMENT IN WHICH THEY LIVE AND WITH WHICH THEY ALSO INTERACT; E.G. A POND, LAKE OR STREAM.

EPHEMERAL - LASTING A VERY SHORT TIME; SHORT-LIVED; AS APPLIED TO WATER AREAS - SHORT-LIVED LAKES AND PONDS.

EPILIMNION - IN A THERMALLY STRATIFIED LAKE, THE TURBULENT LAYER OF WATER THAT EXTENDS FROM THE SURFACE TO THE THERMOCLINE.

ESKER - A SERPENTINE RIDGE OF GRAVELLY AND SANDY DRIFT BELIEVED TO HAVE BEEN FORMED BY STREAMS UNDER OR IN GLACIAL ICE.

EUTROPHICATION - ENRICHMENT OF THE WATER OR LAKE SOIL. INCREASE IN NUTRIENTS REQUIRED FOR GROWTH OF ORGANISMS MAY COME ABOUT BY NATURAL PROCESSES OR RAPID ENRICHMENT MAY TAKE PLACE DUE TO SOME CAUSE SUCH AS THE INTRODUCTION OF SEWAGE EFFLUENT. EUTROPHIC LAKES ARE WELL PROVIDED WITH BASIC NUTRIENTS.

EVAPOTRANSPIRATION - THE COMBINED LOSSES FROM A LAKE SURFACE DUE TO EVAPORATION, SUBLIMATION, AND TRANSPIRATION FROM PLANT LIFE.

FLATS - WATER WITH SLIGHT TO MODERATE CURRENT AND WITH AN UNBROKEN SURFACE BUT LESS DEPTH THAN POOLS.

FLOODPLAIN - THAT PART OF A LAKE OR STREAM BASIN LYING BETWEEN THE SHORELINE AND THE SHORE CLIFF AND SUBJECT TO SUBMERGENCE DURING A HIGH WATER STAGE.

FLUVIAL - PERTAINING TO STREAMS AND RIVERS.

FORAGE FISH - ALL SMALL SIZE FISH USED AS FOOD BY LARGER FISH.

GLACIAL DRIFT - MATERIAL OF ANY SORT DEPOSITED IN ONE PLACE BY GLACIAL ACTION AFTER HAVING BEEN MOVED FROM ANOTHER LOCATION.

GLACIAL LAKE - A LAKE FORMED AS A RESULT OF GLACIAL ACTION.

GLACIAL OUTWASH - DEPOSITS MADE OF MATERIALS PRODUCED BY GLACIERS AND CARRIED, SORTED, AND DEPOSITED BY WATER THAT ORIGINATED MAINLY FROM THE MELTING GLACIAL ICE. THE DEPOSITS NOW EXIST AS STRATIFIED BEDS OF CLAY, SAND, OR GRAVEL IN THE FORM OF PLAINS, VALLEY TRAINS, AND DELTAS OF OLD GLACIAL LAKES.

GLACIAL PLAINS - GLACIAL MATERIAL THAT HAS BEEN SORTED OR STRATIFIED BY THE MELTWATER OF A GLACIER AND IS CARRIED AND DEPOSITED MAINLY AS BEDS OF CLAY, SAND, AND GRAVEL TO FORM PLAINS.

GLACIAL TILL - A DEPOSIT OF UNSTRATIFIED EARTH, SAND, GRAVEL, AND BOULDERS TRANSPORTED BY GLACIERS.

GOB-PILE - THE REFUSE AREA FROM A COAL PROCESSING PLANT CONSISTING OF WASTE COAL BY-PRODUCTS, ROCK MATERIAL AND SOIL.

GRADIENT - THE INCLINATION FROM THE HORIZONTAL OF THE LAKE BOTTOM BEGINNING AT THE SHORELINE. THE SLOPE OF A STREAM OVER A GIVEN DISTANCE.

GRAVEL PIT - LAKES OR PONDS FORMED BY THE EXCAVATION OF GRAVEL.

GROUNDWATER TABLE - THE UPPER LIMIT OF THE PART OF THE SOIL OR UNDERLYING MATERIAL WHOLLY SATURATED WITH WATER.

HARDNESS (WATER) - THAT QUALITY IN WATER WHICH IS IMPARTED BY THE PRESENCE OF DISSOLVED SALTS; ESPECIALLY CALCIUM SULFATE OR BICARBONATE.

HOMOGENEOUS - COMPOSED OF PARTS ALL OF THE SAME KIND.

HYPOLIMNION - IN A THERMALLY STRATIFIED LAKE, THE LAYER OF WATER BELOW THE THERMOCLINE AND EXTENDING TO THE BOTTOM OF THE LAKE. THE WATER TEMPERATURE IS VIRTUALLY UNIFORM.

IMPOUNDMENT - A BODY OF WATER PONDED OR HELD BACK BY A DAM, DIKE, FLOODGATE, OR ANY OTHER BARRIER.

INTERMITTENT STREAM - A STREAM HAVING WATER ONLY PART OF THE TIME.

KAME - A MORE OR LESS ROUNDED HILL OF SAND AND GRAVEL ASSOCIATED WITH GLACIAL DEPOSITS.

LACUSTRINE DEPOSIT - MATERIALS DEPOSITED FROM LAKE WATER.

LAKE - A LARGE BODY OF WATER SURROUNDED BY LAND. THE ILLINOIS DEPARTMENT OF CONSERVATION CLASSIFIES ALL IMPOUNDMENTS SIX SURFACE ACRES OR LARGER AS LAKES.

LITTORAL ZONE - A NARROW ZONE INCLUDING BOTH LAND AND WATER IMMEDIATELY BORDERING THE SHORELINE OF A WATER AREA.

LOAM - A RICH FRIABLE SOIL CONTAINING A RELATIVELY EQUAL MIXTURE OF SAND AND SILT AND A SOMEWHAT SMALLER PORTION OF CLAY.

LOESS - AN UNSTRATIFIED DEPOSIT OF YELLOWISH-BROWN LOAM COVERING AREAS IN NORTH AMERICA, EUROPE, AND ASIA, NOW GENERALLY THOUGHT TO BE CHIEFLY A WIND-BORNE DEPOSIT.

MARSH - AN AREA WHERE WATER STANDS THE YEAR-ROUND AND IS USUALLY ABOUNDING IN WATER WEEDS, CATTAIL, BULRUSHES, AND OTHER EMERSED VEGETATION.

MGD - AN ABBREVIATION FOR MILLION GALLONS PER DAY.

MORAINE - A RIDGE, MOUND, OR IRREGULAR MASS OF BOULDERS, GRAVEL, SAND, AND CLAY DEPOSITED BY A GLACIER.

MORPHOMETRY - MEASUREMENTS SUCH AS DEPTH, LENGTH, WIDTH, VOLUME, SHORELINE, AND BOTTOM GRADIENTS OF A WATER AREA.

NATURAL LAKE - ANY LARGE IMPOUNDED WATER AREA NOT FORMED BY AN ACT OF MAN.

NURSERY STREAM - A TRIBUTARY STREAM USED BY SMALL FISH FOR PROTECTION AND FEEDING UNTIL THEY REACH MATURITY.

OXBOW LAKE - A LAKE OCCUPYING THE ABANDONED CHANNEL OF A LOOPING MEANDER OF A RIVER.

PARAMETER - A CONSTANT OR VARIABLE TERM IN A FUNCTION THAT DETERMINES THE SPECIFIC FORM OF THE FUNCTION BUT NOT ITS GENERAL NATURE.

PERMEABLE SOILS - SOILS CAPABLE OF ALLOWING THE PASSAGE OF WATER. A POROUS SOIL.

pH - THE SYMBOL FOR THE LOGARITHM OF THE RECIPROCAL OF HYDROGEN ION CONCENTRATION IN GRAM ATOMS PER LITER. A pH OF LESS THAN 7.0 IS ACID, A pH OF 7 NEUTRAL AND MORE THAN 7.0 IS ALKALINE. pH INDICATES THE ACIDITY OR ALKALINITY OF A MATERIAL.

PHOTOSYNTHESIS - THE PROCESS BY WHICH GREEN PLANTS USE SUNLIGHT, CARBON DIOXIDE, AND WATER TO PRODUCE CARBOHYDRATES AND OXYGEN.

PHYSIOGRAPHY - THE SCIENCE OF PHYSICAL GEOGRAPHY. A STUDY OF THE FEATURES AND NATURE OF THE EARTH'S SURFACE.

PLANKTON - A TERM FOR AN ASSEMBLAGE OF MICRO-ORGANISMS, BOTH PLANT AND ANIMAL, WHICH FLOAT, DRIFT, OR SWIM IN THE WATER AND IN THEIR MOVEMENTS ARE SUBJECT TO WAVE AND CURRENT ACTION.

POLLUTION - THE PRESENCE OF ANY FOREIGN SUBSTANCE IN WATER WHICH TENDS TO DEGRADE ITS QUALITY SO AS TO CONSTITUTE A HAZARD OR IMPAIR THE USEFULNESS OF THE WATER.

POND - A SMALL BODY OF WATER SURROUNDED BY LAND. THE ILLINOIS DEPARTMENT OF CONSERVATION CLASSIFIES ALL IMPOUNDMENTS LESS THAN SIX SURFACE ACRES AS PONDS.

POOLS - DEEPER PORTIONS OF A STREAM USUALLY WITH A SMOOTH SURFACE AND SLOW FLOW.

PPM - ABBREVIATION FOR PARTS PER MILLION IN TERMS OF UNITS OF WEIGHT. USED TO REPORT THE AVAILABILITY OR PRESENCE OF SALTS, NUTRIENTS, GASES AND TOXIC MATERIAL IN WATER.

PRIMARY PRODUCTIVITY - THE RATE AT WHICH ENERGY IS STORED BY PHOTOSYNTHETIC AND CHEMO-SYNTHETIC ACTIVITY OF PRODUCER ORGANISMS (GREEN PLANTS) IN THE FORM OF ORGANIC SUBSTANCES WHICH CAN BE USED AS FOOD MATERIALS.

REHABILITATION - TO RESTORE TO A GOOD CONDITION. IN THE CASE OF UNDESIRABLE FISH POPULATIONS, THE POPULATION IS REMOVED IN WHOLE OR PART IN ORDER TO RESTORE IT TO A GOOD CONDITION.

RELIEF - A CONTOUR VARIATION OF THE LAND SURFACE IN RELATION TO THE SURROUNDING LAND.

RIFFLES - SHALLOW BUT RAPID CURRENT OVER GRAVEL OR RUBBLE.

ROTENONE - A PLANT ALKALOID AND IS THE ACTIVE INGREDIENT IN DERRIS POWDER, CUBE, BARBASCO, AKAR TUBA, AND ALSO IN THE CURRENTLY AVAILABLE FISH TOXICANTS FOR USE IN KILLING FISH.

RUNS - MODERATE TO RAPID CURRENT FLOWING IN A DEEPER NARROWER CHANNEL THAN A RIFFLE BUT THE CURRENT IS NOT AS TURBULENT AS IN A RAPID.

SECCHI DISC - A CIRCULAR PLATE 20 CENTIMETERS IN DIAMETER THE UPPER SURFACE OF WHICH IS DIVIDED INTO FOUR EQUAL QUADRANTS AND SO POINTED THAT TWO QUADRANTS DIRECTLY OPPOSITE EACH OTHER ARE BLACK AND THE INTERVENING ONES WHITE. THE INSTRUMENT IS USED TO MEASURE LIGHT PENETRATION IN WATER.

SILTATION - THE FILLING OF WATER AREAS BY SEDIMENTS CARRIED IN BY INFLOWING SURFACE WATER.

SPORT FISH - ANY FISH THAT IS SOUGHT AFTER BY ANGLERS USING A POLE AND LINE.

STRATIGRAPHY - A BRANCH OF GEOLOGY DEALING WITH THE CLASSIFICATION, NOMENCLATURE, CORRELATION, AND INTERPRETATION OF STRATIFIED ROCKS.

STRIPMINE LAKE OR POND - WATER IMPOUNDMENTS RESULTING FROM COAL MINING OPERATIONS NEAR THE SURFACE OF THE GROUND.

SUBSTRATE - THE BOTTOM DEPOSITS OF A LAKE OR STREAM ON WHICH ORGANISMS MAY GROW.

SYNCLINE - SLOPING DOWNWARD IN OPPOSITE DIRECTIONS SO AS TO MEET IN A COMMON POINT OR LINE. A DOWNWARD FOLD OF ROCK STRATA.

TAILWATER - THE PORTION OF A STREAM IMMEDIATELY BELOW A DAM.

TERMINAL MORAINE - A RIDGE OF GLACIAL TILL MARKING THE FARTHEST ADVANCE OF A PARTICULAR GLACIER.

THERMAL STRATIFICATION - DIFFERENCES IN WATER TEMPERATURE FROM THE SURFACE TO THE BOTTOM IN WHICH DISTINCT LAYERS CAUSED BY TEMPERATURE GRADIENTS AND RESULTING CHANGES IN WATER DENSITY.

THERMOCLINE - THE STRATUM OF WATER IN WHICH THERE IS A RAPID RATE OF DECREASE IN TEMPERATURE WITH DEPTH; A MINIMUM OF ONE DEGREE CENTIGRADE PER METER OF DEPTH. THE THERMOCLINE IS LOCATED IMMEDIATELY BELOW THE EPILIMNION.

TOPOGRAPHY - THE DETAILED MAPPING OR CHARTING OF THE FEATURES OF A RELATIVELY SMALL AREA, DISTRICT, OR LOCALITY. THE RELIEF FEATURES OR SURFACE CONFIGURATION OF AN AREA.

TURBIDITY - THE DEGREE OF OPAQUENESS OF WATER DUE TO THE AMOUNT OF FINE MATTER IN SUSPENSION.

WATERSHED - THE WHOLE SURFACE DRAINAGE AREA THAT CONTRIBUTES WATER TO A STREAM OR IMPOUNDMENT.

WETLANDS - LAND FEATURES THAT ARE PERMANENTLY WET OR INTERMITTENTLY WATER COVERED SUCH AS SWAMPS, MARSHES, BOGS, MUSKEGS, POTHOLES, SWALES, GLADES, SLASHES, AND OVERFLOW LAND OF RIVER VALLEYS.

WINTERKILL - PARTIAL OR COMPLETE LOSS OF FISH AND ANIMAL LIFE OF A WATER AREA DUE TO THE FORMATION OF A COMPLETE ICE COVER CAUSING OXYGEN DEPLETION FROM WATER STAGNATION.

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